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ABSTRACT

This study is concerned with certain features of the curriculum decision-making process including ways in which alternatives are argued, the types of reasons entertained for preferring one option over another, and the basis on which some proposals are ultimately accepted and others rejected. It is argued that, with respect to these features, curriculum theory in its present state appears unable to provide a basis for an adequate understanding of the curriculum decision-making process. On the basis of two conceptual features which form the theoretical foundation of the study and using the philosophical analyses of rational argument (by Toulmin) and of the deliberative process (by Baier), a framework is developed for the analysis of the discourse of curriculum policy deliberation. This framework was tested through the analysis of transcribed samples of deliberation obtained from a science curriculum committee. This analysis allowed both the identification of the logical elements of deliberative discourse and also a discussion of their relationship. Following this trial analysis, the framework was appraised and refined in light of the appraisal. A discussion of the theoretical and practical significance of the research concludes the dissertation. (Author/JN)

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THE LOGIC OF CURRICULUM POLICY DELIBERATION:

AN ANALYTIC STUDY FROM SCIENCE EDUCATION

by

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Department of Educational Theory

A Thesis submitted in conformity with the requirements
for the Degree of Doctor of Philosophy in the
University of Toronto

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Abstract of Thesis

THE LOGIC OF CURRICULUM POLICY DELIBERATION:

AN ANALYTIC STUDY FROM SCIENCE EDUCATION

Graham W.F. Orpwood

This study is aimed at improving our understanding of certain aspects of the process of curriculum making in schools. Every school has what it calls its curriculum, its plans for teaching its students. And curriculum theory is the body of knowledge by which the curriculum and the process of its development can be understood. It is the argument of this thesis, however, in respect of certain features of the curriculum making progess--the ways in which alternatives are deliberated over, the types of reasons entertained for preferring one alternative over another, and the basis on which some proposals are ultimately accepted and others rejected--that curriculum theory is unable at present to provide the basis for such an understanding. The task of the study is, then, the development and appraisal of a fresh conceptualisation of these aspects of the curriculum deliberation process.

Two conceptual features form the theoretical foundation of this study. First, curricula are conceptualised as a type of policy--rules, plans, or guides for determining what shall be taught in

specific situations. As such, they possess both rational content and political force, and the process of curriculum making must be seen in the light of this duality. Second, the deliberative process of curriculum policymaking is considered to possess a logic--at once, an account of what curriculum policymakers do and an idealisation of that activity.

On the basis of these concepts, and using philosophical analyses of rational argument (by Toulmin) and of the deliberative process (by Baier), a framework is developed for the analysis of the discourse of curriculum policy deliberation. This framework is tested through the analysis of transcribed samples of deliberation obtained from a science curriculum committee at which the investigator was a participant-observer. This analysis enables both the identification of logical elements of deliberative discourse and also a discussion of their relationship. Following this trial analysis, the framework is appraised and refined in the light of the appraisal. The study concludes with a discussion of the theoretical and practical significance of this research.

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Chapter 1

UNDERSTANDING CURRICULUM DELIBERATION: A GOAL FOR RESEARCH

Every school has what it calls its curriculum, plans for teaching its students. And, given the overall educational purposes of schools, what is contained in the curriculum is a matter of obvious importance. Important too is the process used to determine the curriculum. Now it is reasonable to expect that the body of knowledge known as "curriculum theory" will provide the terms and concepts with which this process can be understood. If it should fail to do so, or if its conceptualisation is inadequate, then not only does the process of curriculum making remain inadequately understood but, more importantly, educational practitioners concerned with changing and improving the curriculum are unable to reflect systematically and critically on their own experience.

This study is concerned with certain features of the curriculum making process, including the ways in which alternatives are argued over, the types of reasons entertained for preferring one option over another, and the basis on which some proposals are ultimately accepted and others rejected. I shall argue that, in respect of these features at least, curriculum theory in its present state appears unable to provide the basis for an adequate understanding of the process. The task of the study can then be seen as an attempt to redress this lack of adequate curriculum theory by developing a fresh conceptualisation of one aspect of the process of curriculum making. But first, the area of practice on which the study is focussed must be outlined more precisely.

Curriculum Deliberation

Teaching is a sufficiently complex and important activity that the need to prepare and plan for it carefully is generally acknowledged. Of course, the curriculum actually experienced by students in a classroom is not always exactly the one that was planned. But nevertheless the expectation is that, by making certain strategic decisions in advance, classroom events will have an overall shape and purpose which they would lack in the absence of such planning. The ultimate curriculum planner is clearly the individual teacher who must plan specifically for each lesson in the light of the specific circumstances of his situation.

But the substance of a teacher's lesson plan is not created de novo for each separate occasion by the teacher working independently from scratch. The decision by teacher X to teach subject-matter topic A using strategy B on a particular day is simply the last in a chain or network of decisions the rest of which have been made on previous occasions. Some of these earlier decisions may have been the teacher's own, made, for example, in course of planning work for the year, term, or week. But others are likely to have been made elsewhere: at school level, at school board level, or even at the level of the Ministry of Education. But whatever the level at which the decisions are made, they combine to form a context which sets limits within which the teacher conducts his own planning for his specific situation.

But still the question remains: how are such context-forming decisions made? By what type of process using what mechanisms? The varieties of both curriculum practice and prescription provide ample

evidence that curriculum policies are not self-evidently correct; they must, in some way, be determined. Furthermore, they cannot be discovered or deduced scientifically either. This fact of curriculum life has often been ignored by investigators who have nevertheless attempted to discover "valid" educational goals through empirical research. A recent review (Orpwood 1980a) documents attempts of this sort in the field of science education and criticises their underlying reasoning. Schwab (1970) describes the propensity of curriculum workers to look to theoretical science for answers to their practical problems as an "inveterate, unexamined and mistaken reliance on theory" (p. 1). He goes on to point out that theory "by its very character, does not and cannot take account of all the matters which are crucial to questions of what, who and how to teach; that is, theories cannot be applied, as principles, to the solution of problems concerning what to do with or for real individuals, small groups, or real institutions located in time and space--the subjects and clients of schooling and schools" (pp. 1-2). Curricula--by their nature, specific and practical responses to real and unique situations--thus cannot be objectively deduced. They must be determined through some process of social decision making.

Brian Barry (1965), in an analysis of the types of procedure by which social decisions can be made, identifies seven: combat; bargaining (involving real or implied threats); discussion on merits; voting; chance; contest; and authoritative determination (pp. 85-90). He goes on to point out that these are "ideal types" and that, in practice, "mixed processes" involving more than one of the basic

procedures are often used to reach actual decisions. In determining curricula, it would appear that several of these might play a part. At first sight, "discussion on merits" would appear to be the principal method but it is quite possible also that elements of several others (e.g. "bargaining," "voting," and "authoritative determination") could also play a role. Clearly, this is an empirical question and only one somewhat general assumption is made about it here. It is assumed that, in a social democracy where the schools and school officials are held publicly accountable, any process used to determine the curriculum must involve, to a significant extent, consideration of its defensibility, or of reasons why it is appropriate. And the name we give to the process in which decisions are made taking reasons into account is "deliberation". Further analysis of the concept of deliberation is provided later in this dissertation. For the present, this informal definition is adequate for indicating the focus of this research.

The Purpose of Curriculum Theory

The area of practice called curriculum deliberation has, then, been identified as problematic (cf. Dewey 1938, p. 107) for the purposes of this study. It should be noted that this designation does not imply that curriculum deliberation is, in actuality, practised badly (nor, of course, that it is practised well either). What is implied is that the area is confused or obscure, that it is not well understood in a formal or systematic way. And in not understanding it, neither the practitioner nor the theorist can reflect on the practice of it in a

disciplined or objective manner. It is the task of curriculum theory to provide such understanding and discipline. Dewey expressed the same idea most clearly:

> Education is a mode of life, of action. As an act it is wider than science. The latter, however, renders those who engage in the act more intelligent, more thoughtful, more aware of what they are about, and thus rectify and enrich in the future what they have been doing in the past. (Dewey 1929, pp. 75-76).

Through examining, in general, how theory in education might fulfill this role, I shall identify three criteria by which existing curriculum theory may be assessed.

There are, it would appear, three tasks which educational theory should fulfill in relation to educational practice. It should enable the observation of the practical phenomena, it should render them comprehensible or coherent, and it should provide the basis for their critical evaluation. Each of these three tasks is of significance to both practitioner and theorist and each warrants some further explication.

Any form of observation, as Hanson (1958) and others remind us, is a "theory-laden" business. A teacher, an educational psychologist, and a parent may all watch a lesson being taught in a classroom, but they will not necessarily report the same observations. What one is trained to see, another will miss. And the difference resides in the different implicit conceptualisations of the classroom that each brings to the experience. In order that observation be systematic, objective, and disciplined, an explicit and shared conceptualisation of the phenomena must exist. It is this function of

theory that allows one to talk of "seeing practice with theory" (Munby 1980, p. 1) and then to compare alternative "theoretical lenses." The notion of theory as a prerequisite to observation has been discussed at length by philosophers of science and need not be further expanded here. However, one point is important. If theory is indeed intended to facilitate observation, its concepts must have clear and direct correspondence to the empirical phenomena of practice.* This criterion may appear to be obvious but it is one on the basis of which some theoretical formulations appear to fail. Observation, in summary, lies at the basis of any descriptive account of educational practice, whether by participant or outsider. Theory provides both the theoretical categories and the linguistic tools with which descriptions can be formed.

But observation and description of educational phenomena are not enough. We want to know what the phenomena are like, but we also want to know why they are that way. And theory can aid in understanding and explaining the complex phenomena of practice. An adequate theory can do this because its concepts are not just randomly selected intellectual abstractions but individual components in a network of coherent thought. They hang together, as it were. This characteristic of coherence within a complete theoretical framework is what permits the process of theoretical extrapolation leading to practical prediction. It also enables theories from different areas to

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* This notion of correspondence and (later) that of coherence are drawn from Margenau's analysis of the formal requirements of constructs in his The Nature of Physical Reality (1950). The use of the term "correspondence" is not, however, intended to imply a positivistic view of the relationship between theory and observation.

be linked to each other through the recognition of common conceptual patterns. This is of particular interest to the theoretician and philosopher of knowledge because it enables speculation on the nature of the theoretical field itself. While such speculation (as Schwab points out in relation to curriculum theory) represents a "flight from the subject of the field" (1970, p. 17), it can also contribute much to our understanding of the nature of the enterprise and thus, indirectly, to our conduct of it. The criterion for adequate theory that is identified here is, then, internal coherence.

Finally, the ultimate purpose of understanding the phenomena of education practice better is that practice may thereby be improved. And a key component in the cycle of practice and improvement is the assessment or evaluation of the practitioner's efforts, either by the practitioner himself, or by an expert observer. From this assessment, mistakes can be identified which, in turn, can form the basis of a change in future performance. Without the evaluation, no specific mistakes are identified, and the experience is, as it were, flat and featureless. And for the evaluative assessment to be based on more than just personal intuition, either of the observer or of the practitioner, there must be standards or criteria, by which the conduct of each part of the process can be objectively assessed, and from which suggestions for improvement can be derived.

In the absence of theory no such standards are available and practitioners are therefore obliged to rely on the personal assessments of other, more experienced, practitioners. And where differences of opinion arise, there is no basis for choosing one over another except

on the basis of one's confidence in their authors. No basis exists for a discussion or resolution of differences. Dewey suggests that disciplined reflection on experience is the professional duty of educators, and recently Wise (1979) reiterated the suggestion.

> Sifting through personal experience to pick out its lesson is essential to improving professional competence; those who are getting better at their work are already doing it.... When we are involved in curriculum development, we are thinking <u>within</u> deliberation about what the curriculum should contain. But as professionals, we also take time to think on a second level about the general conduct of deliberation. It is this second level--of thinking <u>about</u> deliberation--that is the source of our professional growth. (p. 25)

It is in providing some order and discipline to this second level of thought that the educational theory can be of value to the practitioner. This leads then to the third criterion of an adequate theory of educational phenomena. It must embody an ideal from which criteria or standards for the assessment of practical performance can be deduced. It must be emphasized that this does <u>not</u> mean that educational theory should comprise prescriptive recipes for the conduct of practice. Rather, an ideal should be implicit in the concepts and relations that make up the theory in such a way that criteria or standards -- not injunctions for actual practices -- can be brought to bear on the particular case.

We now have three criteria, empirical correspondence, internal coherence, and implicit ideals, by which the adequacy of theoretical formulations concerning educational practice may be assessed. If all of these criteria are met, then there is a strong likelihood that the theory in question can be both practically useful and, at the same time, a significant contribution to knowledge. If any one criterion is not satisfied, then that indicates a corresponding

weakness in the theory, and a less than adequate understanding of the practical phenomena.

A Preview of the Study

I argue in this dissertation that curriculum theory, in its present state, lacks an adequate conceptualisation of the process of curriculum deliberation, that none of the theoretical formulations in the literature succeed in meeting all three of the criteria just outlined, and that therefore, in respect of the practice of curriculum deliberation, educators are unable either to reflect in a disciplined way on their experience or, in Dewey's words, "to enrich in the future what they have been doing in the past." The problem of the study then becomes that of developing such concepts and relations among these concepts that are required to enable an improved understanding of the practical phenomena. In addition, the conceptual framework that is developed must withstand critical assessment in terms of the same three criteria.

The dissertation itself comprises eight chapters. In the next chapter, the literature of curriculum theory is reviewed with a view to assessing its adequacy. Following a more specific analysis of the substantive inadequacies of existing theories, the research problem can be restated in a more precise form. The third chapter describes the methodology of the research, while chapter 4 contains the theoretical core of the thesis, the development of a scheme for analysing the discourse of curriculum deliberation. Chapters 5 and 6 describe the trial use of the scheme in an analysis of specific

instances of curriculum deliberation and chapter 7 contains an assessment of the scheme in the light of this application. Finally, the conclusions of the research are set out in an eighth chapter.

Chapter 2

ATTEMPTS AT UNDERSTANDING: A REVIEW OF THE LITERATURE

The theoretical literature relating to the practice of curriculum making is so diverse that an exhaustive review is beyond the scope of this study. Furthermore, very few theoretical formulations have been developed that expressly address the practice of deliberation as the means for curriculum determination. For these reasons, the literature has been divided for review purposes into two major clusters, in which major, representative, pieces only are cited, and two individual authors, whose work has dealt explicitly with curriculum deliberation. In each of the following four sections, therefore, the thrust of the theoretical work is first described, then a summary account of the criticisms by other authors is set out, and finally the area is critically examined from the perspective of the three criteria for theoretical adequacy identified in the first chapter. This latter examination will enable a clear assessment of the areas in need of fresh conceptual development.

I. Rational Planning Models

There are a large number of conceptualizations of the process of curriculum making which are based on clear logical distinction between two curricular elements: the intended effects of the curriculum on the learner (variously expressed as aims, objectives, goals, images, intended learning outcomes, and so on) and the programme of activities designed to bring about these effects (teaching strategies,

instructional methods, learning experiences, etc.). The relationship between these two elements is seen in terms of "means" and "ends", the teaching being the means to the end of student learning. Although this view of the curriculum has a history of over sixty years, many of its modern proponents claim it is based on Tyler's (1949) Basic Principles of Curriculum and Instruction, though it is instructive to note how Tyler himself regarded his book. He describes it as "a rationale for viewing, analyzing, and interpreting the curriculum and instructional program of an educational institution.... It is not a manual for curriculum construction" (p. 1). Later, at the end of the book, he reiterates this point. "Another question arising ... is whether the sequence of steps to be followed should be the same as the order of presentation in this syllabus. The answer is clearly 'No'" (p. 128). Thus, Tyler disclaims any intention of setting out a method of curriculum making.

While Tyler is cautious about the status of the rational principles he sets out, others following after him have been less so. Not only do some writers see the objectives of the curriculum as logically prior to the methods for their attainment, they also assert that objectives should actually be determined first. On this point, most advocates of rational planning in curriculum are quite specific (see, for example, Bobbitt 1924, Taba 1962, Mager 1962, Gagné 1963, Popham 1970, amongst many others). This move from an analysis of logical features of a curriculum (as conducted by Tyler) to a prescription for procedure (as contained in most rational planning models) is rarely argued for, if it is even recognized as a "move" at

all. (An exception to this is Hirst (1973) who, after insisting, at length, that rational planning must mean "putting first things first", concedes that the appropriateness of rational planning as an ideal for curriculum is an arguable matter.)

Indeed, rational planning as a means for curriculum determination has not lacked for critics. Among the criticisms that have appeared in the literature, three sets would appear to be especially apt. These raise questions about: (1) the possibility of being able to state or predict desirable outcomes of education (e.g., Eisner 1967, Doll 1972); (2) the possibility of being able to plan means independently from ends (e.g., Dewey 1922, Macdonald 1965, Olson 1976, Wise 1976); (3) the assumption that rationally planned curricula are the necessary prerequisites to defensible teaching or worthwhile learning (e.g., Oakeshott 1962, Doll 1972). In addition to these "philosophical" objections to the use of rational planning, another set of so-called objections is derived from the increasing quantity of empirical evidence that teachers, even good teachers, do not, in practice, follow such rational planning principles when they plan their teaching. Clark and Yinger (1977), for instance, cite nine studies all of which support this conclusion. That this kind of evidence can constitute an "objection" to rational planning at all is itself problematic and is discussed in more detail later.

Guttchen (1969) provides a helpful perspective on this means-ends rationality by recalling its origins in the work of John Stuart Mill. Two points, in particular, emerge from Guttchen's critique of Mill that are illuminating in coming to an assessment of the rational

planning model in relation to curriculum making. The first is that, as Guttchen explains, Mill's means-ends categories are "primarily applicable to the process of fabrication, of the making of things" (p. 34). The ease of this application gives rise to the tendency (discussed at greater length by Arendt (1958, pp. 136ff.)) to treat all ends "as if they were things that can be made" (Guttchen, p. 34). The second feature of Mill's logic identified by Guttchen is a preoccupation with the proof and justification of the products of inquiry rather than with the methods of inquiry or discovery themselves. Mill's logic "supplies canons for the criticism of results already achieved or, in the realm of practice, of goals proposed and courses of action already fixed" (p. 36). The issue for Guttchen, and for us as well, is the range of relevance of Mill's model rather than its fundamental validity. And on this matter, Guttchen concludes that its applicability appears to be the greatest in connection with the construction of things and least in matters of moral choice and decision leading to action.

Implications of this critique of rational planning are developed later in the chapter. For the present, the criticisms of the rational planning group of theories may be summarised using the three criteria of empirical correspondence, internal coherence, and implicit ideals. It is clear that this group is strongest in respect of the implicit ideal and internal coherence and weakest in respect of its correspondence to empirical practice. Several authors have noted the difficulty with which they have attempted to observe the actual practices of curriculum makers using the categories of rational

planning models. Theories of this type have persisted however because of their tight internal logic and the ideal for practice this implies. However, as Guttchen suggests, the inadequate conceptions of curriculum and curriculum making implicit in these models are responsible for the lack of correspondence to the realities of practice.

II. Empirically Grounded Models

The fact that teachers do not, in practice, use the principles of rational planning when planning curricula is not, in itself, an important or recent discovery. One must assume that the advocates of rational planning would not have needed to promote their cause so vigorously if it had already had a strong following. In this respect, empirical studies which document the "non-use" of rational planning models (e.g., Ammons 1964, Joyce and Harootunian 1964, Jackson and Belford 1965, Zahorik 1970, Goodlad et al. 1974) merely confirm an existing sense of the situation. However, as evidence of this type has accumulated, increasing doubt has been expressed about the value of such models at all. Eisner (1967) sums up these doubts succinctly.

> If educational objectives were really useful tools, teachers, I submit, would use them. If they do not, perhaps it is not because there is something wrong with the teachers but because there might be something wrong with the theory. (p. 253)

When one recalls that one of the criteria, discussed earlier, of an adequate theory of a practical enterprise is its correspondence to empirical practice, then one is obliged to concur with Eisner's conclusion.

Accordingly, researchers have, in recent years, begun to conduct descriptive or "naturalistic" studies of how curriculum planning is actually carried out in practice, with a view to the development of empirically-based "models" or "theories" of such a process. Taylor (1970), Zahorik (1975), Morine (1976), Peterson et al. (1978), and Yinger (1978) are amongst those who are recorded in a recent review (Clark and Yinger 1977) as having published studies of this type. However, as I shall endeavour to show, these studies, while informative accounts of an important aspect of educational practice, are inadequate as theories of curriculum deliberation. The point is important, and to clarify this assessment of such studies, it is helpful to recall the criteria of theoretical adequacy that were discussed earlier.

It has already been pointed out that while a theory of an enterprise must have the capacity for being used to observe and describe an instance of the enterprise, it must also have more than that. As a statement of an ideal for the conduct of the enterprise, it must also have normative content, making it usable for the evaluation of instances. This means that the categories which it incorporates must have more than empirical validity; they must be justifiable analytically on the basis of a systematic conception of the nature of the enterprise. Such categories cannot be expected to emerge from data nor be selected arbitrarily from other models or theories. There are many examples of the appropriate derivation of analytical categories of this kind, particularly in the writings of analytical philosophers. For example, in relation to the concept of teaching, Scheffler (1965), Komisar (1968), and Hirst (1971) provide such analyses.

In none of the studies of curriculum planning cited above is there any sustained argument in support of the categories used for observation and interpretation. In some instances (e.g., Zahorik 1975, Petersen et al. 1978) "the use of objectives" (as a category) shows the continuing influence of the rational planning model on the researchers despite their own evidence of its absence in schools. In another (Yinger 1978) the investigator at one point expected that categories would emerge from the data ("Concepts, methods, and processes gradually surfaced in the data after I spent extended periods observing and describing the teacher's decision behavior" (p. 121)). At another point, he hoped that a "general model of the teacher planning process" could be based, in part, on "theory translation, ... the process of borrowing a theory or part of a theory from one situation and applying it to another based on similarities between the two situations" (p. 25). On this basis, he "borrowed" with little further ado from studies of mathematical problem solving, chess playing, musical composition, art, and architectural design. Such a smorgasbord of undefended theoretical constructs is unlikely, I submit, to contribute to an adequate theory of curriculum deliberation. Nor, in any of the other studies cited, were the categories argued for on the basis of an analysis of the nature of the process being observed. At present, therefore, none of this group of empirically grounded studies can be considered as an adequate theory of curriculum deliberation.

It is important also to distinguish the present study, directed at understanding curriculum deliberation, from yet another mode of research designed to identify the features of "effective"

curriculum change. Leithwood et al. (1976, 1979) have conducted a number of studies directed toward this end and the differences in purpose are important. Leithwood's concern is with "strategies most appropriate for use by university-based research and development (R&D) personnel" (1979, p. 1). To this end he reports a series of case studies "informally judged to be 'reasonably successful' by both those in change agent roles and a significant proportion of the client population" (p. 2). The key to the difference between such research and that described here is in these notions of "success" and "effectiveness" which are central to Leithwood's argument. In the present study no claims are made that the deliberation process be successful or effective--by any definition. What is under examination is how, in detail, educators reason about curricula and about changes in curriculum. There are no guarantees implicit here--nor, as far as I can see, in Leithwood's work--that logically reasoned policies will result in successful change, nor that effective change is evidence of sound reasoning in deliberation. These are clearly questions for further empirical investigation.

Thus, while the rational planning models score well on their implicit ideals and internal coherence, they fail on the criterion of empirical correspondence. By contrast, the empirically grounded models, while valid empirically and coherent internally, contain no ideals by which standards for evaluating the practice of curriculum deliberation can be deduced. More constructively, this analysis has underlined the importance of a systematic analysis of the concepts of curriculum and curriculum deliberation as the route towards an adequate conceptualization of the deliberative process.

III. Walker's 'Naturalistic Model"

The research of Decker Walker into the processes of curriculum deliberation is both sufficiently distinct and also sufficiently closely related to the concern of this study that its separate consideration is warranted. In a series of reports (1970, 1971a, 1971b, 1971c, 1975), Walker set out first, a model of curriculum development (his "naturalistic model"), and second, its application in the description of the deliberations of several curriculum development projects with which he was associated.

The categories in Walker's model are radically different from any previously appearing in the literature. Furthermore, they are argued for on the basis of a systematic consideration of the development process. His model comprises three elements: "the curriculum's platform, its design, and the deliberation associated with it" (1971a, p. 52). He argues that the process of curriculum development consists of moving from a project's platform, "the system of beliefs and values that the curriculum developer brings to his task," (p. 52) by means of deliberation to a curriculum design, "the set of abstract relationships embodied in the designed object (materials for classroom use)" (p. 53). Thus emerges the beginning of a conceptualisation of deliberations leading to the production of curriculum materials. Walker goes on to use analyses of deliberation (Schwab), practical reasoning (Gauthier), and patterns of argument (Toulmin) in the construction both of his model and of the associated "System for Analyzing Curriculum Deliberations." Finally he demonstrates the empirical correspondence of his analytical scheme

through the systematic analysis of transcriptions of deliberations from three curriculum projects (1971b).

Walker's work thus meets all three of the criteria for an adequate theory. It has empirical correspondence, internal coherence, and implicit ideals (although this aspect is not developed by Walker). Furthermore, in examining logical features of deliberations, Walker's work broke new ground in the field of curriculum research and has had considerable influence on the development of the present study. There is, however, an important difference between Walker's research and that reported here. His attention was focussed on the work of curriculum projects whose goal was the development of curriculum materials for general use. Curriculum deliberation at school or school-board levels, by contrast, is concerned with the course of action to be followed in a specific situation. This distinction, explained in more detail later, places a severe limitation on the applicability of Walker's model, and, in particular, prevents its direct use here. Of course, it is possible--even likely—that a theory of deliberations for specific curricula will have features in common with Walker's theory of deliberations for curriculum materials development, but this cannot be assumed in advance.

IV. Schwab's "The Practical: A Language for Curriculum"

Schwab, also, is concerned for the logical features of curriculum making and, in his series of articles entitled "The Practical" (1970, 1971, 1973), he outlines what almost amounts to a theory of curriculum deliberation. His argument stems from his conception of curriculum

as a "practical" as distinct from a "theoretic" enterprise. Curiously perhaps, he makes no mention here of Aristotle's third category, "the productive," nor of the consequences of an excessive preoccupation with that conception of curriculum making. As regards the process of curriculum making, he stresses the importance of deliberation as "the method of the practical."

> Deliberation is complex and arduous. It treats both ends and means and must treat them as mutually determining one another. It must try to identify, with respect to both, what facts may be relevant. It must try to ascertain the relevant facts in the concrete case. It must try to identify the desiderata in the case. It must generate alternative solutions. It must make every effort to trace the branching pathways of consequences which may flow from each alternative and affect desiderata. It must then weigh alternatives and their costs and consequences against one another, and choose, not the <u>right</u> alternative, for there is no such thing, but the <u>best</u> one. (Schwab 1970, p. 36)

At this point, frustratingly for the reader anxious to have this notion further developed and applied, Schwab moves on to explain how effective deliberation requires attention to the arts of eclectic (1971) and the participation of a variety of "bodies of experience" (1973). As a result of this move, alternative moves leading toward a theory of deliberation are not pursued.

The writings of Schwab, therefore, are considered not as a developed theory of curriculum deliberation, but a starting point for the development of such a theory. As such, his analysis of curriculum deliberation is discussed in more detail in chapter 4.

Towards a New Conception of Curriculum Deliberation

Before leaving this review of the literature, I want to turn some of the criticisms of existing curriculum theory to a constructive purpose: the outlining of two concepts having the potential both of resolving the problems of existing theory and of enabling a more precise statement of the objective of the present study.

Curriculum Policies

It is clear, from the discussion both of the rational planning models of curriculum making and of Walker's analysis of curriculum deliberations, that theorists have traditionally conceived a curriculum as an "artifact" to be assembled. The rational planning models then specify a systematic means for constructing a curriculum and Walker conceives of the construction process as a deliberative one. While their models for the process thus differ radically, the nature of the product is seen as being similar. Yet, as was noted earlier, there is no reason to suppose that a deliberative process leading to the development of curriculum materials for general use must be similar to one leading to decisions for action in a specific context. It is, therefore, important to consider carefully the nature of the curriculum that emerges from the deliberative process to ensure that the process of its development is adequately conceptualised.

In this study, curricula, at whatever level they are formulated, are conceptualised as a type of policy, and are therefore described as curriculum policies.* Thus, curriculum guidelines from

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* No distinction is thus intended between "curriculum" and "curriculum policy." The additional word is added for clarification purposes.

the Ministry of Education, program guides developed by a local school board, as well as the teacher's own plans for his class are all regarded as curriculum policies, in this sense of the term. Such a usage is consistent both with the ordinary language use of the term "policy" as well as with definitions of "curriculum policy" encountered in the curriculum literature.*

In the interests of clarity, two further distinctions are perhaps helpful at this point. As has just been indicated, curriculum policies are conceptualized here as rules, plans, or guides for the determination of what shall be taught in specific situations. As such, it is important that they be distinguished from textbooks and from those products of so-called "curriculum development" projects that are designed for general as distinct from specific application. Such materials may be regarded as "policy options" and, while their adoption for use in a given situation would count as a curriculum policy decision, decisions involved in their original development or construction would not (unless some prior commitment to adopt them had been made).

This distinction--between curriculum policies applicable to specific jurisdictions or contexts and curriculum materials applicable more generally—is of crucial importance to the present study. It tends to be blurred when terms such as "curriculum development" (or curriculum making or curriculum decision making) are used to

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* This usage is consistent, for example, with that stipulated by Kirst and Walker (1971) and with analyses of the concepts of curriculum (Daniels 1981) and of educational policy (Ballinger 1965; Kerr 1976).

characterize both the development of materials (e.g. Walker 1971a; Schaffarzick and Hampson 1975) and the making of policies (e.g. Taba 1962; Stenhouse 1975). The ambiguities and misunderstandings that can result from this multiple usage have been recognized before (Connelly 1972; Walker 1976) but the distinction proposed here is arguably more comprehensive than either Connelly's or Walker's. Its most immediate value is in clarifying the relationship of this study whose focus is the making of curriculum policies to methodologically similar studies, such as Walker's own, whose concern is with the development of curriculum materials.

The second distinction can be dealt with more briefly. Much is made by some authors of a fundamental distinction claimed to exist between "curriculum" and "instruction;" often, the one (instruction) is regarded as the means to the end of the other (curriculum). The distinction is a structural one in which objectives (for example) belong in the curriculum while teaching strategies are seen as part of an instructional plan. Johnson (1967) provides an exemplary account of such a distinction. In the present study, the terms, "curriculum" and "instruction," are also distinguished but not in the same way. Here, instruction is seen as the activity through which a curriculum is implemented in the classroom. Both a curriculum and the corresponding instruction may thus contain such components as subject-matter topics, objectives, and teaching strategies. The distinction made here between curriculum and instruction is thus one of function rather than of formal content, the curriculum being the policy or intent and the instruction the action carried out in order to fulfil the intent.

Thus, while the study is concerned with the formulation of curriculum policies, no assumptions are implied by this stipulation about what the content of such policies might be in any particular situation.

This conception of curriculum enables a fresh view of the process of curriculum making. I have shown that the principles of rational curriculum planning (a) conceive a curriculum primarily as an "artifact" which (b) may be analyzed into its constituent elements (i.e., objectives, strategies, etc.) with a view to (c) its rational and systematic construction. And it may be argued that, in part, it can be so conceived. But however much a policy is a thing that is made, it is also much more than that. It is also a statement of decision concerning action, and, as such, represents a commitment of will as well as a product of reason. And, as a commitment of will, a curriculum policy has political force as well as rational content. A means-ends logic, therefore, that takes only part of this dual nature into account is unlikely to be an adequate conceptualization of the policymaking process.

The Logic of Curriculum Policy Deliberation

Alternative proposals for curriculum policies have been debated, one must assume, for as long as schools and curricula have existed. Certainly Aristotle (in The Politics) discusses the problem of determining what to teach to the young and the topic has been the object of argument in the literature ever since. And although we have less direct evidence about deliberations over actual curriculum policies, we must also assume that, for the debates in the literature

to have had more than academic significance, deliberations have been carried on. Curriculum policymakers throughout the ages have effectively determined what should be taught in schools. In this context, effectiveness is conceived simply in terms of success at resolving problems at hand, in this case problems associated with the development of curriculum policies. (A more stringent criterion of effectiveness implying both development and implementation of policies is specifically not intended.)

Such continued success at the conduct of curriculum policy deliberation suggests the existence of some systematic, if unarticulated, method at work in the process, an example of what Kaplan calls a "logic" (1964, p. 8). Now, "logic" is a term which can be used to denote both the conduct of an activity and the study of that conduct. We say that a person is planning "logically" and also that there is a "logic of planning." And Kaplan distinguishes between these two by means of the terms "logic-in-use" (referring to the former) and "reconstructed logic" (with reference to the latter). He goes on to point out that "we can no more take them to be identical or even assume an exact correspondence between them, than we can in the case of the decline of Rome and Gibbon's account of it, a patient's fever and his physician's explanation of it" (p. 8). He illustrates this distinction and the important relationship between the two types of logic by reference to the practices of scientists (their logics-in-use) and to the philosophy of science (its reconstructed logic).

"Logic," Kaplan also notes, "deals with what scientists do when they are doing well as scientists" (p. 8, my emphasis). This

sentence embodies two essential characteristics of the relationship between a logic-in-use and a reconstructed logic of an enterprise. Since this relationship is of key importance in this study, each of the two features will therefore be discussed before proceeding.

First, a reconstructed logic is, in some senses at least, a representation of the way in which practitioners actually operate. For example, an element of a reconstructed logic, such as (in the case of science) the use of experiments to test hypotheses, can be expected to have an empirical counterpart in the logic-in-use of the profession, if the particular reconstruction is to be regarded as a useful one. But second, a reconstructed logic is not merely a descriptive account of what practitioners do. It is also an idealization of that practice which embodies norms for the critical assessment of practices. And, as Kaplan points out, herein lies the danger that the autonomy of professional practice can be subtly subverted. He writes: "The normative force of the (reconstructed) logic has the effect, not necessarily of improving the logic-in-use, but only of bringing it into closer conformity with the imposed reconstruction" (p.11). A good reconstructed logic, therefore, functions as a lens through which to view practice critically, not as a model from which to synthesize practice. In this respect, the concept is similar to that of "theoretical perspective" discussed by Roberts and Russell (1975) and Munby (1980).

This notion of curriculum policy deliberation as having a logic can be seen to have the potential for resolving the problems of the two major types of theory about curriculum making described

earlier. Both groups of theoretical models are attempts at reconstructing the logic of curriculum making. However, one group (the empirically grounded models) lacks an adequate conception of curriculum because it embodies neither an idealization of practice nor norms for its critical assessment. The other group (the rational planning models) has such normative force that it is easily misused by being imposed as a recipe for professional practice. A proper balance of the two characteristics of a reconstructed logic is thus of crucial importance in an adequate conceptualisation of the practice of curriculum policy deliberation.

Before proceeding, I would note, parenthetically, that the term "logic" in this context is used to denote something distinct from a branch of formal logic. One definition of the discipline of logic is that it is the study of the "principles and methods of correct reasoning" (Kneller 1966, p. 1). Simple though this formulation appears to be, its varied interpretation gives rise to a number of alternative conceptions of the scope of logical inquiry. The one most favoured by professional logicians (according to Kneller) is the "formalist" conception in which the discipline involves the study of formally valid arguments, the products of reasoning. "An argument, says the formalist, is valid by virtue of its form rather than its subject matter" (Kneller, p. 57). This means that the arguments of interest to the formalist are those whose conclusions are logically contained in or implied by their premises. Toulmin (1958), calling these arguments "analytic", points out that, in practice, we do not use such arguments very often in the course of our daily lives. Rather, he

suggests, our arguments depend for their validity not on formal criteria but on norms and standards particular to the field in which the arguments are used. He calls such arguments "substantial" to distinguish them from the formal (analytic) arguments of concern to the logician (1958, pp. 123ff). Kneller develops and illustrates Toulmin's point, specifically in regard to education arguments.

> We generalize about the future on the basis of our experience of the past, and we consider such generalizations justified, although there is not one of them that it would be self-contradictory to deny. . . . We make moral and aesthetic judgments, support scientific theories, and take up political positions; yet in each case our conclusion conveys information that is not contained in the evidence. (p. 60)

Given this state of affairs, Kneller claims that "the proper business of logic is to examine the arguments that are used in different fields and to devise criteria for judging the arguments that are used in each particular field" (p. 60). He goes on to criticize the formal logicians who "deprecate arguments in science, ethics, law and education on the grounds that they are not analytic," claiming that such arguments should be judged on their own merits.

Arguments about what to teach are clearly not analytic arguments having formal validity but substantial ones in which conclusions are drawn on the basis of reasons acceptable to the profession and its publics. While curriculum policy arguments may therefore hold little of interest for the formal logician, that does not preclude the possibility of speaking of or studying a logic of curriculum policy deliberation.

The Problem of the Study Restated

This reflection on the theoretical formulations present in the literature of the curriculum field has resulted in the development of two concepts whose use appears to hold considerable promise. First, the concept of a curriculum as a form of policy emphasises the need to conceptualise the process of making curricula in dynamic terms both as the construction of a plan and as the development of a commitment to action. Second, the concept of a reconstructed logic as a lens with which practice can (a) be observed and (b) be analysed critically attends to the multiple functions of adequate theory discussed earlier.

The objective of the present study can therefore be restated with greater precision than was possible earlier. It is the development of a logic of curriculum policy deliberation. Before embarking on an account of this development, one further qualification concerning the focus of the study is required.

The making of a curriculum involves the use of reasoning in many forms. At one level, every individual who is involved reasons in his own mind about the curriculum being made, about the comments of other participants, about what he might contribute to the process, about more personal matters, and about the interactions amongst all of these. At the other extreme, reasons are publicly given in support of final decisions concerning the curriculum. These may or may not be related to the reasons why one curriculum option was actually selected over another. Between these extremes, reasoning takes place in various groups having diverse responsibilities relating to the curriculum. A

study of the logic of curriculum policy making could, in principle, take place at any of these levels.

This study is focussed quite specifically at a level roughly midway between the extremes outlined. At the level of an individual's reasoning, there are significant problems of evidence--can one know an individual's reasons for saying what he says?, for example. At the level of the final decision, and the reasons provided in its defense, the problem is different: to what extent do these reasons reflect those that actually led to the particular choices involved? Here, the focus is on the reasons used in the discourse of deliberation, i.e. the reasons used in the process of reaching a decision about the curriculum. Thus, while the dynamic nature of the curriculum policy making process is recognized, the level of detail at which this dynamic is to be examined is restricted to the statements of the participants, and to such meanings of those statements as might reasonably be inferred from the context in which they occur.

Chapter 3

RESEARCH METHODOLOGY

The purposes of this study are, then, to develop a framework for analyzing logical features of curriculum policy deliberation and to assess its applicability. In what follows, the research method by which this objective is reached is outlined and defended. The reasons for using the particular method can best be appreciated by reference to the strengths and weaknesses of other traditions of research within the science education enterprise. The chapter thus falls into three sections: first, the traditions of science education research are briefly reviewed; next, the method of this study is outlined in general terms with an argument for the appropriateness of its use in the present study; and finally, a detailed retrospective account of the activities of this research study is set down. In this way, the reader will be enabled to see both how the general method selected is an appropriate response to the original problem and how the actual events of the research experience maintained the discipline and integrity of that method.

Research Traditions in Science Education

In one of the most recent published reviews of the state of research in science education, Colin Power (1976) identifies what he describes as three competing paradigms each incorporating its own approach to "research methods, data interpretation, and acceptable standards of solution and explanation" (p. 579). These he calls the "agricultural -

scientific" paradigm, the "anthropological" paradigm, and a group of "philosophical" paradigms. His account of each is summarized briefly here.

The agricultural-scientific paradigm has, as Power points out, been the dominant one in science education research for many years. Its name derives from the fact that its assumptions and techniques have been adapted from those used with success in agriculture and the natural sciences. Typically, in such research, experiments are developed in which hypotheses concerning the relations among known and observable variables can be tested. The rules and criteria by which such research may be evaluated are well established and this tradition has still a strong following. Power notes that, of 200 papers presented at 1974 meetings of the National Association for Research in Science Teaching and the Australian Science Education Research Association, about one-quarter "aspired to the experimental approach." And even a cursory glance at recent volumes of the Journal of Research in Science Teaching would confirm the continuing dominance of this tradition. The tradition's strengths are well documented: the reproducibility of experiments; the potential for powerful statistical techniques to be applied in establishing relationship among variables; the potential for systematic and empirically validated theory construction.

In recent years, however, the tradition has also had its share of critics. Among the most prominent of these, claims Power (p. 582), are those who consider educational phenomena from an anthropological rather than a psychological perspective. This

tradition emphasises the uniqueness of persons and thus of educational phenomena as distinct from their generalisability which is of interest to the experimentalist. For the anthropologist the whole array of observable differences among situations is of interest in characterizing each; for the scientist, great care is taken to control for or otherwise diminish all those differences not already selected for examination. The researcher from the anthropological tradition uses ethnographic techniques, which enable an in-depth understanding of many facets of a situation or group of individuals. These include such techniques as long-term observation, tape-recording of dialogue, interviews with participants, and background studies of context. In so doing, this tradition exchanges reliable generalisability of its findings for depth of insight into human interactions and the meanings ascribed to events by the participants. However as Power acknowledges, research in this tradition can also be "an excuse for research without ideas, the anecdotal model with its indiscriminate data collection and unsupported conjectures" (p. 583). In comparing these two traditions, it appears that there is a natural tension between <u>disciplined</u> scholarship (exemplified by the experimental tradition) and <u>imaginative</u> or <u>creative</u> scholarship (exemplified by the ethnographic one). A third tradition has developed however, in which both discipline and creativity are required in full measure; Power calls it the philosophical paradigm.

This newer tradition of research in science education rejects the notion that to be unscientific one must be undisciplined. Instead it looks to the discipline of philosophy rather than to that of natural

or social science as the source for its theoretical insights and for its criteria for quality. The approach entails the careful selection of theoretical perspectives from which the events of science education may be systematically and rigorously analysed. Of particular value in this process is that area of philosophical scholarship known as philosophical analysis, in which the concepts, terms, and ideas employed in educational practice are carefully clarified. Kneller (1966) calls such activity "informal" analysis to distinguish it from the work of formal logicians and analytical philosophers whose work is of less direct relevance to the understanding of practice. The outputs of this tradition of research are both of general application--the theoretical perspectives generated can be used in a variety of contexts--and insightful, since a well honed analytical distinction can clarify with great incisiveness. The method is described in more detail later. First however, in order to explain the reasons for this choice of research, the three traditions are compared in terms of the problem of observation and of the role of theory in each tradition.

The Application of Philosophical Analysis in Educational Research

All research in fields having an empirical basis embodies some concept of observation, even if that concept is rarely articulated. The various ways in which observation is conceived can provide one of the clearest backdrops against which to perceive the particular approach to research used in this study.

Hanson (1971) describes two conceptions of observation as extreme positions, the "Scylla and Charybdis," between which the responsible investigator must steer. The first is one that assumes observation to be merely the having of a window on the world through which one inspects reality. In such a conception, the observer can in principle be cleansed of all subjectivity and can, again in principle, report what "is there." Such a conception, sometimes also described as "naive realism", fails to provide an adequate explanation for the coexistence of different views of the same reality (other than to assume that one is incorrect). The second view, described as formalist, represents the polar extreme in that observation is here regarded as being so laden with the subjective biases and prejudices of the observer that it is reduced to an almost totally insignificant role. For the formalist, research becomes an exclusively intellectual process in which "problems" are solved by the construction of theoretical models whose empirical correspondence is of less consequence than their internal coherence. The weaknesses of both of these extremes are discussed in detail by Hanson and need not be repeated here. What is of more interest is how the three research traditions described earlier have, in their more sophisticated versions, dealt with the need to find a middle ground, in which the reality of "theory-laden" observation is acknowledged and in which what is seen is, in large part, a function of how one looks.

The scientific tradition, inasmuch as the problem of observation is recognized at all, rests its approach on the need to build new research on established theory. Thus, for example,

psychometric tests are used to measure such constructs as skills, attitudes, and aptitudes and each test embodies a stipulated definition of the skill, attitude, or aptitude under examination, and both the test instrument and the results it purports to measure derive from this stipulated definition. By rooting both the definition and the technique in the established traditions of educational scholarship, the investigator can ensure that the results of his work will be compatible with those that have gone before. Furthermore, by laying out both definition and instrument for examination, he enables his work to be checked or replicated. Research in this tradition is well linked to other work in the tradition and the body of theory gradually increases. If there is a weakness to such research, it comes not in its theoretical rigour but in its practical utility.

By contrast, the anthropological paradigm of educational research places the practical needs of the educator ahead of the theoretical demands of the discipline. Such a link with practice is, in fact, used to defend the tradition (e.g. Kilbourn 1980). Its primary strength is in the strong and varied connections between the theoretical results of research and the empirical events of educational practice. Since a given researcher approaches each new situation afresh, he deliberately attempts to shed the explanatory systems from the discipline in order to respond in as open a way as possible to the new events which he confronts. In particular he is concerned for any effects which his own intervention may have on that which he is observing; such effects are themselves part of the data for consideration. Thus while the empirical connections of this paradigm

are relatively strong, its connections with established knowledge are at best unsystematic and at worst non-existent.

These observations concerning the complementary strengths and weaknesses of these two traditions lead naturally to the conclusion that the two traditions can both be used to advantage in advancing our knowledge. As Power notes, "more often than not, significant problems demand the combined talents of individuals with alternative perspectives and complementary skills" (p. 586). Such combining of methodologies in a large-scale research effort is illustrated by the recent Status Studies of Science Education in the U.S. (National Science Foundation 1978) and by the ongoing Study of Canadian Science Education by the Science Council of Canada (Orpwood 1980c). Another way of dealing with the strengths and weaknesses of these two traditions, and one more suited to the smaller scale of many research projects is through the use of what Power describes as a "philosophical paradigm" (pp. 583-85).

In outlining their defense of this methodology, Roberts and Russell (1975) deliberately describe its potential for steering a middle course between two positions--corresponding to the two traditions described here--one of which espouses the improvement of theory as the goal of science education research, while the other has no particular place for theory. The position they advocate is the systematic development of theoretical perspectives (not theories) from which educational practice may be systematically examined and analysed. The approach draws its theoretical strengths from analytical philosophy in which the uses of words and concepts relevant to education are

analysed and clarified. The task of the researcher comprises the process of "translating" this theoretical perspective or insight into the practical context of science education. Typically this entails the development of what Roberts and Russell call a "clue structure" or analytical scheme. The research process is shown diagrammatically in Figure 1.

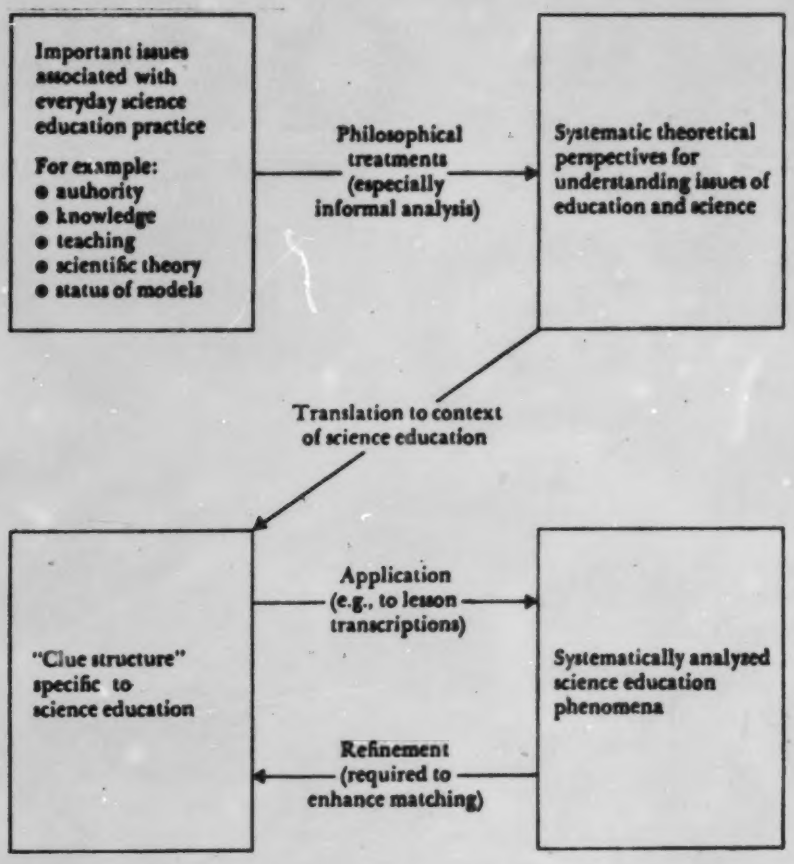
Important issues associated with everyday science education practice
For example:
• authority
• knowledge
• teaching
• scientific theory
• status of models
Philosophical treatments (especially informal analysis)
Systematic theoretical perspectives for understanding issues of education and science
Translation to context of science education
"Clue structure" specific to science education
Application (e.g., to lesson transcriptions)
Refinement (required to enhance matching)
Systematically analyzed science education phenomena

Figure 1. The Roberts & Russell Research Process

This approach to science education research has now been in use for over ten years in a variety of studies by several different

researchers. Roberts and Russell illustrate their discussion by reference to six studies all of which used this approach and recently a collection of research reports in this genre has been published (Munby, Orpwood, and Russell, 1980).

In the present study, the task is to develop and test a framework for analyzing logical features of curriculum policy deliberation. To such a task, the "philosophical" approach just described is particularly well suited. In the first place, an analytical scheme must be capable of engaging with the real events of curriculum policy deliberation. A scheme whose categories are derived solely from idealistic considerations for how policy ought to be developed fails to meet that criterion (as the earlier discussion of the "rational planning models" demonstrated). And in the second place, if the scheme is to have normative power, i.e. be usable in evaluating or improving practice, its categories must be rooted in a firm conceptualisation of the policy process. In that respect the relative freedom from observational categories of the anthropological paradigm is also inadequate (as the earlier discussion of "empirically grounded models" indicated). The philosophical approach described by Roberts and Russell has the potential for the development of analytical categories that are both theoretically significant and empirically valid.

Retrospective Account of Research Method

In this section, the research of the present study is described in terms of the "4-box" schematic representation of Roberts and Russell

(1975), shown in Figure 1. This will serve both to illustrate the model itself and also to provide the reader with an appreciation of the steps entailed in developing the thesis defended in this dissertation.

The first box represents the initial step of identifying one or more "important issues associated with everyday science education practice". Earlier studies of this genre reported in Roberts and Russell's article or the recent collection (Munby, Orpwood, & Russell 1980) focussed on such issues as the teacher's use of authority, the status and nature of knowledge being transmitted in science classrooms, the provisions made for students to learn to think independently, how curriculum materials are evaluated, amongst others. In the case of the present study the "issue" is drawn from the area of curriculum rather than instructional practice. Its general importance as an issue is explained in Chapters 1 and 2 and need not be elaborated here. Its importance to me personally derived from my participation in a process of curriculum policy deliberation at a school board in Ontario during the period 1977-79. I was present in two capacities. First, it was understood and agreed that I wanted to observe (and record) the process. But second, the local participants, looking upon me as a relative expert, expected periodic advice and constructive comments during their meetings. I have reported elsewhere on the tension between these roles of participant and observer and the means by which that tension was dealt with (Orpwood 1980b). What this experience required, above all, was a means of "making sense of" rather than merely reacting to the process in which I was a participant. The lack of an existing logic of curriculum policy deliberation with which the

process could be analysed was thus of immediate, personal, and practical importance.

The second stage of this research is described by Roberts and Russell as the development of "systematic theoretical perspectives for understanding issues of education and science" (p. 116), such perspectives being developed from the products of philosophical analysis. In this case, the details of this part of the study are reported in chapter 4, but two sources of philosophical analysis were found (after an extensive search, several trials, and frequent errors) to be of most value. These are Toulmin's (1958) analysis of the patterns of arguments that are used in substantive disciplines, and Baier's (1958) analysis of the stages of deliberation. These taken in combination provide the key elements of the theoretical perspective for the study.

The next move in the research process is the "translation" of the theoretical perspective—itself a set of concepts or distinctions necessarily in general terms--to the more specific context of science education. The product of this move is described by Roberts and Russell as a "clue structure specific to science education". In the present case the analytical framework or clue structure, described in chapter 4, is in fact more general than that, inasmuch as it is intended to be of value in analysing curriculum policy deliberation in any school program area. In constructing the clue structure for the present study, it was necessary to combine selected key elements from Toulmin's "argument pattern" with selected key elements from Baier's analysis of the deliberation process in such a way that the resulting framework attended to all the elements of significance in the material

to be analysed. This meant that the elements of the framework had to be so defined, in some cases redefined or renamed from the original author's work, that a clear correspondence could be seen between the resulting categories and the various types of data. In making these adjustments, care had to be taken to ensure that the integrity of the theoretical perspective that had been argued for earlier was maintained. This ensured the firm rooting in disciplined scholarship which is one aspect of the strength of this approach.

The other strength of this research approach is the equally firm link with the phenomena of educational practice and the final two steps of the process are designed to ensure that this link is well established. First, the framework must be applied to instances of "data". In earlier studies, transcriptions of teaching, text from science textbooks, and papers prescribing objectives have all been used as data. In the present case, clearly, the study was focussed on curriculum policy deliberation and transcriptions of samples of such deliberation provide an obvious data base. As explained earlier, my presence as a participant-observer at the meetings of a science curriculum committee enabled my collection of such data, which has subsequently been edited to ensure the anonymity of all persons and places involved or referred to. A more detailed account of the method of analysis is provided in chapters 5 and 6 after the framework itself is set out. This step resulted in a systematic analysis of the phenomena and confirmed for me that the framework was usable.

One further step was required however in order that the study be completed. It was important to refine the analytical framework at

least to ensure the absence of redundant categories, the maximum degree of comprehensiveness of the analysis, and the usability of the framework by other investigators. Three tests were therefore conducted to enable evidence on each of these three matters to be reported (in chapter 7).

In research of this style, it is important to note what precisely is claimed by way of the results or products of the research. The primary output is the analytical framework itself. It is expected that this framework can be used to further our understanding of curriculum policy deliberations and thereby assist other investigators working in different situations. The instances of deliberation actually analysed in the present study are of no general or continuing interest; they are set down here merely instrumentally as a means for demonstrating the use of the framework. The study is thus intended to have both theoretical and practical value.

Chapter 4

LOGIC OF DELIBERATION: A CONCEPTUAL INQUIRY

Background

In this chapter, the analysis of the logic of deliberation, begun in the first two chapters, is continued and developed into the form of a framework whereby instances of curriculum policy deliberation may be analysed.

Aristotle on Deliberation

Deliberation is originally an Aristotelian concept, whose purpose and subject matter are described in the Nicomachean Ethics (III, ch. 3). There, Aristotle points out that we deliberate "only about things that are in our power and can be done" (1112a, 30) and not about theoretical matters nor about the affairs of others. Further, we deliberate not about certainties--it is not an exercise in prediction--but about things "in which the event is obscure and with things in which it is indeterminate" (1112b, 9-10). Aristotle, however, confines his concept of deliberation to considerations of means, not ends, using as examples the cases of a doctor who does not deliberate over the end for his conduct, healing, and of a statesman regarding the end of "law and order." In regard to educational matters, this belief in the fixed and evident nature of ends is illustrated at greater length in The Politics where his views about what is educationally desirable are set down without equivocation.

> No one will doubt that the legislator should direct his attention above all to the education of youth; for the neglect of education does harm to the constitution. The citizen should be moulded to suit the form of government

> under which he lives....And since the whole city has one end, it is manifest that education should be one and the same for all... (VIII, 1337a, 10-22)

He goes on to discuss the subjects in the ideal school curriculum and the place of each in a child's education.

Another difficulty in applying Aristotle's account directly to the understanding of curriculum policy deliberation is his apparent lack of a clear distinction between "practical reasoning" as a type of argument by which a final decision is defended and "deliberation" as the process by which such a decision is reached. Gauthier (1963) comments on Aristotle's treatment thus.

> Aristotle speaks as if he were describing the process in which someone engages when determining what to do. Indeed, "deliberation" is the appropriate name for this process. But deliberation is not effected by practical syllogisms, or by any formal pattern of reasoning whatsoever. To speak of deliberation as a type of reasoning is to point to the fact that, as a result of successful deliberation, one can produce a piece of reasoning, an ordered argument, leading from a starting point (which is, for Aristotle, the end) to a conclusion--an action to be done. It is this piece of reasoning which is of philosophical interest. What one does in order to be able to set it out is quite irrelevant, although doubtless of importance in other contexts. Aristotle has confused the psychological process by which a person comes to resolve a practical problem with the logical argument in which the steps leading to the resolution are formally set out. (1963, p. 26)

This distinction between process and product is, in my view, an important one for a clear understanding of curriculum deliberation.* Gauthier's apparent dismissal of deliberation as being of interest only to the psychologist, and not to the philosopher, betrays his own

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* It is also essential to an understanding of Gauthier's own argument, a point apparently missed by Reid (1978) who simultaneously draws extensively from Gauthier and blurs this key distinction.

position as a formal logician. However, his own analysis of practical reasoning is of relevance to the present study and is discussed in more detail later in the chapter.

Schwab on Deliberation

Since Aristotle's original exposition of the topic, the topic of deliberation and analyses of its components and methods have not featured prominently in the writings of philosophers. There have been empirically based accounts of educational deliberations from which generalized principles or "tips for success" have been inductively derived (e.g. Raup, Axtelle, Benne, and Smith 1950). And more recently a collection of accounts of a variety of deliberative experiences has appeared (Reid and Walker 1975) but these accounts do not analyse the concept of deliberation in any depth. As Schwab comments in the Foreword to Reid and Walker's book:

> Where logic and strategy have received large and successful study down the ages, yielding the most powerful canons and instructions for their use, the more particular arts of deliberation and tactics have been given little more than honor for their function. From Aristotle to Dewey and Pierce, they have been recognised for what they do, honored for their contribution to our lives, but given little or no attention in their own right. (Schwab 1975, p. viii)

In Schwab's own work however, we find two major moves beyond the relatively technical concept that Aristotle sets down. First, a broad variety of legitimate aims or ends for education are implicitly recognized. And second, the interplay between the determination of ends and means is identified as an important consideration, indeed one that changes the process of deliberation from being merely technical to one that is much more complex. Schwab writes in summary:

> The method of the practical (called "deliberation" in the loose way we call theoretic methods "induction") is, then, not at all a linear affair proceeding step-by-step, but rather a complex, fluid, transactional discipline aimed at identification of the desirable and at either attainment of the desired or at alteration of desires (1970, p. 5)

Schwab's purpose in writing about deliberation here is to convince curriculum workers and theorists of the folly of pursuing methods of inquiry more suited to theoretical problems. He therefore emphasises those characteristics of deliberation which provide substance and edge to this distinction. For this reason, his analysis of the concept is not taken further than his purpose requires. As noted earlier in this dissertation, Schwab does identify some of the key elements that deliberation must identify: "the relevant facts in the concrete case ... the desiderata in the case ... alternative solutions ... the branching pathways which may flow from each alternative and affect desiderata ... costs and consequences (of alternatives)" (1970, p. 36).

Schwab's major work on deliberation is his paper entitled "The Practical 3: Translation into Curriculum" (1973). In it he sets out an account of the ideal curriculum deliberation, designed "to translate scholarly material into curriculum" (p. 501). He argues that such a task, if it is to be carried out competently, requires five "bodies of experience" to be combined in an eclectic fashion. These bodies of experience are, ideally, represented by persons familiar with the five considerations: subject matter, learners, milieus, teachers, curriculum-making. While the first four of these are clear enough in their specification, Schwab dwells at some length on the necessary functions and skills of the curriculum specialist. From this account,

a picture emerges of how deliberation might take place in the ideal situation. And herein lies the problem with attempting to use this account as a "reconstructed logic" of curriculum policy deliberation. As was explained earlier, a reconstructed logic, if it is to be useful, must be to a certain degree a representation of how practitioners actually operate. If it is not, then it lends itself to being disregarded or misused. Some practitioners will simply ignore a model or ideal which does not seem to relate to their own experience; others, by contrast, will forget their experience and treat the model as a new recipe for practice. This, Kaplan argues, is a subversion of the autonomy of professional practice.

In the case of Schwab's account of deliberation in "The Practical 3: Translation into Curriculum," it appears that there have been few examples reported in the literature of its practical use. His earlier paper, "The Practical: A Language for Curriculum," is constantly cited for its theoretical and analytical insight. There is one case, reported by Fox (1972), in which Schwab's detailed account of the ideal deliberation was clearly used prescriptively; there is little evidence, however, of its use as a means of improving ongoing practice, or even of its use as a lens for examining examples of deliberation. It should be noted that this commentary on Schwab's account in no way implies any weakness in his argument. Rather, it is intended to show that, as a means for examining instances of existing practice with a view to their improvement, it is too idealized.

For a source of theoretical perspectives for understanding and illuminating curriculum policy deliberation, it is necessary to

move away from the literature of the curriculum field per se and into the literature of philosophy and particularly that of political philosophy and ethics. There, one can find the subject of deliberation over practical questions dealt with analytically at a conceptual level removed from the discussion of the practical fields themselves. Armed with the distinctions described in this literature one can return to the practical phenomena of curriculum deliberation with fresh insight.

Vickers on Deliberation

Four authors have been of particular value in clarifying the nature of policy deliberation for the purposes of this study, Vickers (1965), Baier (1958), Gauthier (1963) and Toulmin (1958). And the analytic framework to be described later is constructed largely on the basis of distinctions developed by the latter three.

Vickers takes, as his conceptual model for the policy process, the biological and industrial process of system regulation, using the automatic steering of a ship at sea as an illustrative case. As he explains, such a system is regulated by means of three main steps, the collection of relevant information about the "state of the system", the evaluation of this information based on pre-set norms or standards, and the selection and initiation of an appropriate response (p. 37). This leads him to conceptualise two distinct but related activities in relation to the policy process: an executive activity in which the regulative process operates with no change to the standards or norms governing the enterprise and the policy making activity in which these standards or norms, and therefore the judgements based upon

them, are not assumed to be constant but subject to deliberate changes. Both activities depend however on the process of gathering and representing of information about the overall system and on judgments concerning that information. This process Vickers terms "appreciation" following the usage of "appreciating a situation" (p. 39).

Vickers's analysis continues with the identification of two related components of appreciation, the making of factual judgments about the state of the system--he calls these "reality judgments"--and the making of judgments about the significance of these facts--value judgments. The operation of these two in harmony enables an individual to appreciate the situation in which action takes place. The remaining part of the regulative cycle involves what Vickers calls "instrumental judgments" in which alternative courses of action are proposed in the light of the appreciation. Thus, the cycle of institutional regulation continues,

> an endless dialogue between appreciative and instrumental judgment, in which appreciative judgment always has the last word, testing the solutions offered to it against judgments of fact or of value and rejecting them (that would not be practical; that would not be fair) until an acceptable one is found. (pp. 47-48).

Vickers's concept of appreciation is at once helpful and limited in its application to the problem of the present study. First, it is valuable in that it links the policy and executive processes in a conceptualization of the regulation of an ongoing enterprise. In this, it is unlike the radical conception which ignores the continuing nature of institutions and instead considers policy problems as though policies were developed from scratch. Vickers's conceptualization thus appears to be the more realistic. Second (and related to the first),

Vickers places great stress on the function of information in the policy process. Many of the discussions of so-called rational policy making assume that policy discussions are largely discussions of goals and the values associated with them. Yet, experience leads one to think that, in reality, facts or information rather than values and objectives usually dominate policy discussions.

The limitations of Vickers's analysis for the present study are also two-fold. It is not clear, first, what the logical elements, as distinct from the processes, are in the context of making appreciative and instrumental judgments. Understanding such elements is key to the successful analysis of transcripts of instances of policy deliberation. Second, it is not clear from Vickers's account how the "dialogue" between instrumental and appreciative judgments operates. How, specifically is an action or proposal for action logically related to the information collected? These considerations make it necessary to go beyond Vickers's analysis while also taking its insights into account.

Two Dimensions of the Deliberative Process

It was argued earlier, in the context of a critique of the rational planning model, that curriculum policy has a dual nature, embodying both rational content and political force. It can--and must, if it is to be effective--both communicate information and guide practical decision. A curriculum policy, for example, might communicate to

teachers the objectives and topics of a particular course of study. It should also represent or stimulate a commitment on the part of the teachers to teach the particular topics in accordance with the stated objectives. It if fails to communicate, its rational content needs attention; if it fails to promote action, it lacks political force. These two characteristics are so closely intertwined in practice that a discussion that disregards either one is liable to mislead.

It follows that a process of deliberation designed to yield a curriculum policy as its principal product must also have a corresponding duality. It must attend both to the development of a plan having defensible content and to the matter of bringing about a change in the practices of teachers or, at least, of stimulating a commitment to such a change. Baier (1958), in an analysis of the process of ethical reasoning (to which we shall return later), expresses this distinction as follows.

> When we deliberate, we are therefore attempting to accomplish two quite different tasks, a theoretical and a practical task. The theoretical is completed when we have answered the theoretical question "Which course of action is the best?" The practical task is simply to act in accordance with the outcome of the theoretical. (p. 142)

In the case of deliberation <u>by a group</u> over policies to affect <u>others</u>, the first task is exactly the same while the second is the same in essence though more complex in practice.

Furthermore, there is a complexity evident in actual instances of deliberation which belies Baier's apparently straightforward analysis. Part of that complexity is derived from the fact that while Baier's practical/theoretical distinction is both elegant and incisive, it remains a heuristic device. While it renders

practice more comprehensible to the observer, it makes deliberation no less easy to carry out. Baier's "tasks" are so thoroughly integrated in reality that participants cannot turn, as it were, first to one task and then to the other. Both are achieved simultaneously.

The problem for the study is, however, the rendering of deliberation comprehensible rather than the conduct of it. And the dual nature of the process suggests an analysis developed on the basis of two separate perspectives. In what follows, the process of developing sound reasons for acting in a particular way is first considered, adapting and combining work of Gauthier and of Toulmin; that is the theoretical component. The second perspective is developed from Baier's own work and adds the practical or dynamic component of the analysis. Finally the two perspectives are combined into an analytical framework in two dimensions.

Gauthier and the Practical Syllogism

The first perspective, from which policy deliberation can be analyzed, sees it as a process of determining a decision which is supported by reasons. In this light, deliberation is considered as the process of assembling the substance of a practical argument.* An analysis of practical reasoning therefore can be expected to shed light on at least formal aspects of the products of deliberation. If we understand clearly the nature of these end products, then the process of their

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* The word "practical" is used by Gauthier and also throughout this dissertation in its Aristotelian sense in which problems whose solutions have the form of actions--rather than of knowledge--are called "practical". (Aristotle, Nichomachean Ethics, VI, 5)

development or assembly can also take on new meaning. In this respect, Gauthier's (1963) account of practical reasoning is a helpful contribution to this understanding. Toulmin (1958) examines arguments in a similar way but does so in the context of an extended inquiry into the types of argument found in a variety of fields of discourse. In this section, distinctions from both of these authors are combined to yield one dimension of an analytical framework.

The core both of Gauthier's account of practical reasoning and of Toulmin's "argument pattern" is the Aristotelian syllogism: major premise; minor premise(s); so, conclusion (Gauthier, p. 27; Toulmin, p. 96). But both Gauthier and Toulmin have embellished this stark core to make it more useful as an analytical device. Let us consider Gauthier's version first.

Gauthier's analysis is concerned specifically with arguments in which reasons are being advanced for some action, i.e., practical arguments as distinct from those designed to support a theoretical conclusion. His embellished version of the Aristotelian syllogism consists of three parts defined as follows.

> Premisses with practical force--statements containing desirability-characterizations of the objects of the agent's wants...; other premisses--statements concerning the situation in which the agent must act, his capacities, the probable and possible effect of attempting the various actions open to him in the situation; practical judgments--statements derived from the premisses and specifying the actions to be done. (pp. 43-44)

Clearly, curriculum policies, as practical judgments, are the sort of statements to be supported by such reasoning. Thus, from this perspective, curriculum policy deliberation can be seen as the task of the assembly of these three components into a coherent policy

rationale. Indeed, Gauthier's distinctions have been used (Orpwood 1976) as a means for analyzing curriculum policy statements in science education.

Gauthier's account can thus lead to the development of an analytical framework whose application enables the criticism of instances of curriculum policy deliberation and thus facilitate understanding of curriculum policymaking generally. But Toulmin goes a stage further because his interest is in the comparison of arguments from different fields. Consequently, his version of the syllogism is developed to enable such comparisons to be made. And since another concern of this study is the clarification, epistemologically, of the "curriculum field" in relation to other fields, it is helpful to incorporate elements of Toulmin's account with those of Gauthier's already described.

Toulmin's "Argument Pattern"

Stephen Toulmin's monograph, The Uses of Argument (1958), is an elaborately argued attack on the use of formal logic as the analytical ideal for evaluating arguments in substantive fields. In its place, Toulmin suggests that many of the criteria for sound reasoning are "field dependent" (p. 14) and are therefore accessible to empirical rather than formal inquiry. He then proceeds to develop an analytical framework which incorporates categories whose application can disclose such field-dependent characteristics of arguments. It is thus possible to criticise arguments from a variety of different fields, once the criteria characteristic of each field are laid bare.

Curriculum argument, I have suggested earlier, has never been subjected to the sort of empirical investigation that would enable such criteria to be clarified. It is therefore not possible to demonstrate empirically kinship between the curriculum field and any other fields which employ practical reasoning. Does medicine or law, politics or the fine arts, provide the most appropriate model for curriculists in their search for theoretical understanding of their enterprise? One might argue a case for any of these but Toulmin's argument pattern provides the basis for an empirical investigation.

The complete pattern, shown here in Figure 2, consists of six elements: Data, Conclusion, Warrant, Backing, Qualifier, and Conditions of Rebuttal, all of which are worthy of consideration in the context of this study.

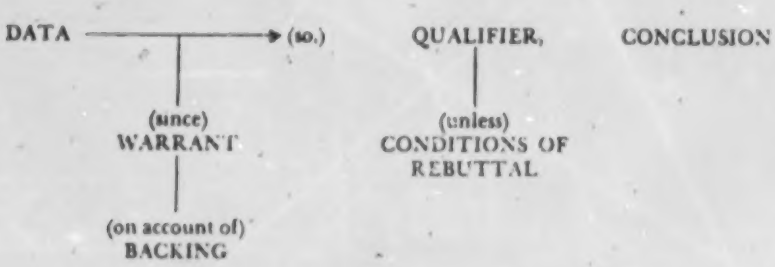

Figure 2. Toulmin's Argument Pattern

Although the terms used by Toulmin (Data, Conclusion, etc.) are perhaps more suggestive of theoretical arguments than practical ones, the pattern can be used, with only minor modification of definitions, to apply to the analysis of policy deliberation.

Accordingly, in what follows the six elements are discussed as they apply in the context of the present study.

The core of the pattern comprises the three elements, Data, Warrant, and Conclusion, which correspond to the three components of the Aristotelian syllogism. If one first redefines these three elements in terms of Gauthier's analysis of practical arguments and then adapts the terminology to suit a discussion of curriculum policy deliberation, the elements emerge essentially unchanged. Toulmin's "Conclusion" specifies an "action to be done" or a curriculum policy. This is clearly the end product of curriculum policy deliberation. Toulmin's "Data" corresponds to Gauthier's "situational premisses" and thus to the particular facts introduced as Reasons in support of the chosen policy. "Warrants," Toulmin describes as statements of the type, "Given Data D, one may take it that Conclusion C" (p. 98). They thus provide the logical "glue" linking facts and decisions and correspond to Gauthier's "normative premisses." The term warrant is retained here to identify this element.

These first three elements are the logical necessities for a piece of reasoning as Gauthier demonstrates. Toulmin's major contribution concerns the nature of the warrants that are used by arguments from different fields. He illustrates these differences first by means of examples, a selection of which are reproduced here.

> The proofs in Euclid's Elements, for example, belong to one field, the calculations performed in preparing an issue of the Nautical Almanac belong to another... the argument, "This phenomenon cannot be wholly explained on my theory since the deviations between your observations and my predictions are statistically significant", belongs to yet another; (1958, p. 14)

In each case, it is the warrant that characterises the field of argument and Toulmin goes on to discuss how warrants are propositions of a general nature on which particular arguments implicitly rest. This generality again distinguishes warrants from the specific facts produced as data in the particular case. The legal parallel is clear, as Toulmin points out. "This distinction, between data and warrants, is similar to the distinction drawn in the law-courts between questions of fact and questions of law" (p. 100). While data, facts, do not vary in kind from one field of argument to another, warrants are of a much greater variety.

While data may be validated in a number of well established and obvious ways, the validity of warrants in a particular field is less obvious. As Toulmin notes, "In addition to the question whether or on what conditions a warrant is applicable in a particular case, we may be asked why in general this warrant should be accepted as having authority" (p. 103). It is to clarify the basis of warrants in any particular field that Toulmin includes the element of "backing" in his pattern. In his legal example, for instance, the backing of the warrants is the laws themselves. The point is that, in making the backing of a warrant explicit, one is clarifying the basis of the warrant's authority. In the present context, the relevance of the "backing" concept is clear. However, in order to discuss what might constitute backing for warrants in curriculum argument, it is necessary to have a large number of warrants derived from the analysis of many instances of curriculum policy deliberation. While the scheme developed in this study is designed to facilitate such a collection, a

full discussion of backing in curriculum argument is beyond the study's scope. However, in a later chapter, the ways in which backing statements might be considered is projected on the basis of the warrants found in the samples of deliberation analysed.

Finally, Toulmin includes two further elements, Qualifiers and Conditions of Rebuttal. These indicate the degree of confidence one may place in a conclusion and the circumstances under which a particular conclusion may be invalid. For two reasons, these elements are not employed in the present study. First, the notion of a "valid" conclusion, while entirely appropriate in Toulmin's account, is somewhat less clear in the context of policy deliberation. A policy conclusion, as has been pointed out earlier, must not only be valid rationally it must be workable practically. The demands of one sometimes require compromises in the other. The concept of validity of a conclusion is thus more complex in a policy field. The second reason follows from the first. In order to accommodate the complexities of policy deliberation, a framework in two dimensions is being developed, combining the insights of two theoretical perspectives. In developing the second dimension of this framework, the needs which give rise to Toulmin's two elements, Qualifiers and Conditions of Rebuttal, are to some extent, at least, attended to.

Baier on the Deliberative Process

The elements of Toulmin's argument pattern can be used directly for analyzing the products of deliberation. In fact, an earlier study (Orpwood 1976) used Gauthier's version of the practical syllogism for

precisely that purpose. However such an analysis, in Kaplan's words, "presents the denouement (of the drama), but we remain ignorant of the plot" (1964, p. 10). More seriously, it can suggest that an argument presented as conclusive--i.e. as supporting the policy finally selected --is in fact the only argument considered (cf. Barry 1965, p. 32), thus misrepresenting the complexity of the deliberative process entirely.

The gradual development of an argument during the course of deliberation is clarified by Baier (1958), who distinguishes between two stages of activity in the deliberative process. He describes the differences between these phases as follows.

> The first stage consists of a survey of the facts for the purpose of drawing up a list of those that are relevant considerations; the second, of the weighing of these considerations, of those pros and cons, with a view to determining their relative "weight" and so deciding the course of action supported by the weightiest reasons, the course that has the weight of reasons behind it. (p. 93)

The reader will note the close parallel between Baier's account and Vickers's "appreciative judgment" described earlier.

Baier however suggests a sequential process in which the data of the argument change in status and significance as the deliberation moves along. Initially, all data are described as "facts", but following the first stage, some of these are eliminated as irrelevant. Those remaining are now called "considerations" and the second stage involves the weighing of these and the determining of those that will become "reasons" for acting. This development of data in the course of deliberation is represented by Figure 3. While this dimension of the framework is intended to be a temporal one, showing the progress of

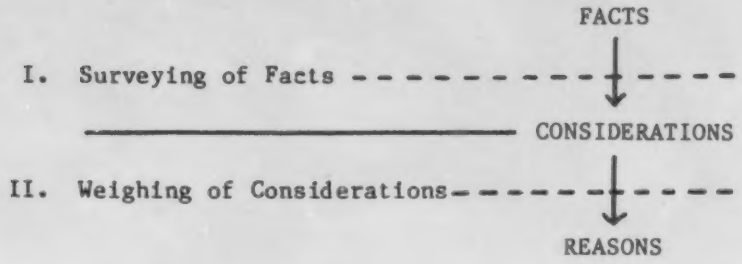

Figure 3. Stages of Deliberation

data during deliberation, it is important to note that new facts can be entered at any time. Thus, while several considerations may be in the process of being weighed together (stage II), new facts may emerge that change the balance entirely. Deliberation is not the linear process that a unidimensional framework, such as this one, suggests.

The principal task at the first stage of deliberation is the selection of those facts that will become considerations subsequently. Thus, for example, when I deliberate about whether or not to go skiing next weekend, the fact that there is presently good snow on the slopes is likely to be admitted as a consideration, while the equally true fact that it is my father-in-law's birthday may not be. At stake here is the relevance to the problem at hand of all the myriad facts available. And in admitting some facts as considerations and excluding others, one applies "rules of relevance" or, as Baier describes them, "consideration-making beliefs" (p. 24).

These rules, Baier points out, are not matters of taste or opinion "relative to particular situations or particular persons" (p. 96), but matters of fact "universally true (or false)" (p. 98). Clearly the rules by which information is admitted or excluded to debate are of great significance to the outcome and rules of relevance therefore deserve further investigation in any study of curriculum policy deliberation. Further discussion of the status of these rules is deferred until examples are available from analysed instances of deliberation.

At the second stage of deliberation, the task consists of weighing those facts previously admitted as relevant considerations to determine which are the most important and which, therefore, are to constitute grounds or reasons for action. At the second stage, any consideration is a potential or "prima facie" reason for acting in some way. We say that we will do X "other things being equal," when we have a prima facie reason for doing X. This does not mean that we will in reality do X. It means that we are in possession of facts that, in the absence of other considerations, would constitute adequate reasons for doing X. Whether we eventually do X depends on the results of our weighing all considerations and developing "reasons on balance" for doing X. This phase of deliberation involves the application of further rules--Baier calls them "rules of superiority" (p. 99)--to rank different types of consideration. As in the case of the rules of relevance noted earlier, further discussion concerning such rules of superiority in curriculum argument is deferred until analysis yields some actual examples.

Finally, then, deliberation concludes with the development of reasons, which have evolved from their original status as facts through becoming considerations (on the grounds of relevance to the problem), and finally becoming reasons by virtue of their outweighing other considerations in importance. It will be noted that in the course of this development, other logical characteristics of these facts did not change. They may be true or false, empirical or analytic, universal or specific. As they start, so do they finish.

A decision is thus supported by the weight of reason which gives the argument force as well as its validity which was our concern earlier. Analysis of deliberation by means of the first dimension of the framework alone enables the determination of the validity or defensibility of the conclusion but not its force. Analysis based on the second dimension alone is equally one-sided. It enables one to comprehend the process of deliberation but allows one to ignore the validity of the conclusion. Clearly, then, analysis in which both dimensions are combined into one framework offers the promise of a more complete scrutiny.

Toward Conclusion and Resolution: A Framework in Two Dimensions

When the two dimensions just outlined are combined, a composite framework is produced which is represented in Figure 4.

It will be noted that abbreviations for the individual elements have been adapted from Toulmin's argument pattern in order to accommodate the second dimension and to retain clarity. Each of the two dimensions of the scheme has already been discussed in detail. At this point,

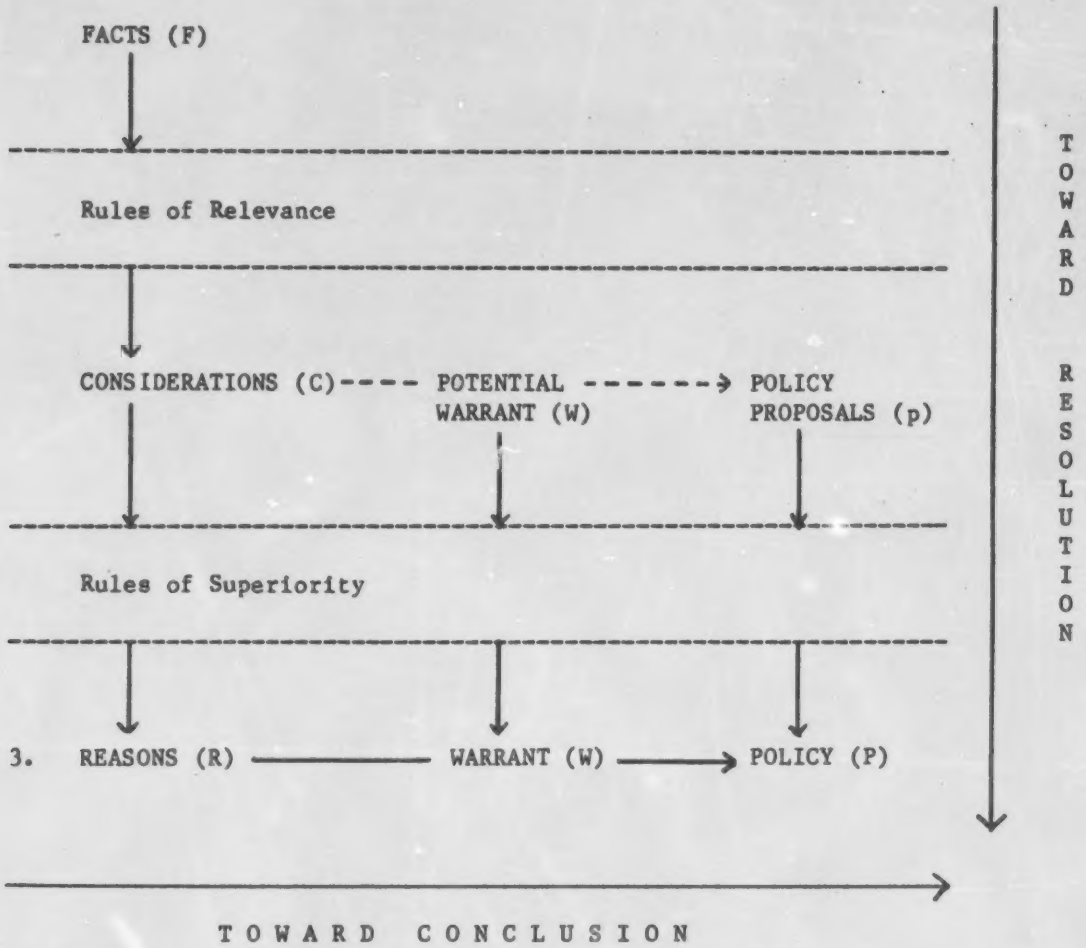

Figure 4. Framework in Two Dimensions

therefore, only those new features resulting from the interaction of the two dimensions require comment.

In the first phase of deliberation, the rules of relevance are applied, strictly speaking, only to warrants or potential warrants. The facts themselves are either unchanged at this stage (if considered relevant) or eliminated from deliberation (if irrelevant). Potential warrants justify prima facie arguments (represented by the dotted arrow) in support of policy proposals. For example, other things being equal, consideration (C1) might support a policy proposal (p1) on the basis of warrant (W1). Similarly in the second phase of deliberation, it is the warrants, strictly speaking, rather than the considerations that are weighed. If a particular warrant is found to possess over-riding weight, then the considerations related to it become reasons in support of a particular policy decision. So, to extend the previous example, if warrant (W1) is judged to outweigh all other warrants, then consideration (C1) supporting policy proposal (p1) becomes a reason (R) for deciding in favour of policy (P). In this way, both the theoretical argument is concluded and the practical problem resolved.

Chapter 5

TRIAL APPLICATION OF THE FRAMEWORK

At this point in the dissertation, it is helpful to reflect on the purposes of the study, so that the trial application of the framework can be considered in its proper context. The study as a whole is exploratory in nature; its primary product is a usable framework for analysing deliberations. The purpose of this portion of the study, therefore, is limited to illustrating and assessing the use of the framework whose development has just been discussed. Specifically, it is not intended to be an assessment or evaluation of particular instances of deliberation, nor is it intended to develop generalisations about curriculum policy deliberation as practised in Ontario or elsewhere. The selection of examples of deliberation for analysis is therefore guided by their potential to yield information about the framework and its applicability rather than by their representativeness of curriculum policy deliberations more generally. A more global assessment of the framework in terms of its use with many types of deliberation is beyond the scope of the present study.

It is not therefore considered necessary to present more details about the context from which the selected samples of deliberations are drawn than is required to render the substance of the data comprehensible to the reader. The only claim that is made concerning the nature of the samples of deliberation examined here is that they fall within the general definition of curriculum policy deliberation stipulated at the outset. Nevertheless, in order that the

reader can assess this claim and also fully understand the trial application of the framework, some background information about the material to be analysed is desirable.

Accordingly, in this chapter, the background to the collection of data for this study, the process of data collection, and the nature of the resulting data base are first described. Then, a primary analysis or sorting process is outlined; this is designed to render the data into a form which is analysable using the framework. Next, the results of this primary analysis are described in detail in order that the selection of samples for secondary analysis can be justified. Finally, the application of the analytical framework to the analysis of two samples of data is described.

Data Collection

During the period 1977 until 1980, the investigator was involved as project officer and co-principal investigator of a research and development project concerned with the science curriculum for the Intermediate division (grades 7-10) in Ontario. In 1977, the provincial Ministry of Education developed a new curriculum guideline for this part of the school science curriculum, which required that a significant number of new policy decisions be taken at school board level.

At OISE, my supervisor and colleague in the project was interested in exploring the applicability to this implementation process of the concept of "curriculum emphases" which he had outlined in an article in the guideline document (Roberts 1978). The major

thrust of this work is reported elsewhere (Roberts and Orpwood 1981). In the present context, one part of this project is of particular importance.

The project was sited in a large school board (23 secondary schools) near Toronto and all the research was conducted in the context of this board's efforts to implement the new science guideline. Responsible for this policy process was the Board's Coordinator of Science (hereafter "the Coordinator") who was expected within a reasonable length of time to recommend to his superior, the Superintendent of Program, a science program for grades 7, 8, 9, and 10. Their recommendations could then form the basis of a formal policy adoption by the Board of Education itself and thus become the required curriculum for the schools in that jurisdiction. Complicating this task was the fact that while the Ontario Intermediate Division (to which this guideline was applicable) covers the range of grades 7-10, the schools in this Board were in fact mostly divided between K-8 (elementary) and 9-13 (secondary) schools. The policy planning process therefore affected nearly every school in the system.

To accommodate this complication and also to maximise the opportunity for teachers to contribute to the decision making process, the Coordinator developed a structural plan, which he called his "process model", comprising a two-tier committee. At one level, a small coordinating committee of six teachers--three from elementary schools and three from secondary schools--with himself as chairman, drafted and discussed possible policy options. Once consensus was reached at this level, the draft recommendations were circulated to all

science teachers in the system, and the work of the second committee began. This committee comprised two representatives from each family of schools--one from every secondary school and one from every corresponding group of "feeder" elementary schools. There was thus the potential of 46 teachers participating at this level. Over a two year period, the coordinating committee met five times and the larger representative committee met twice. At the end of this process, the Board approved the sets of recommendations which were developed by these committees and the resulting program policies for Intermediate science are now in place in that school system.

At an early stage in this process, Roberts and I discussed with the Coordinator the possibility of developing our plans for research within the context of the Board's own program development process. His response to this idea was very positive and plans were drawn up for our participation. The terms of our relationship and understanding with the Board are complex since the study involved many areas of activity other than the policy process (e.g. we directed curriculum materials writing workshops, conducted inservice sessions for groups of teachers, and observed lessons in progress). All of these activities were regulated by carefully negotiated and clearly understood conditions, designed to protect both the Board's (school's, teacher's) rights to professional autonomy in choosing appropriate actions and our own integrity as researchers.

One of the most interesting and, in the present context, most important parts of the overall research consisted of our presence at all meetings (except the first, which had already taken place when we

began our work) of the policy committees. At these meetings, we had the role of participant-observers and we were permitted to observe and make notes concerning all that took place. The details of our negotiated relationship in this context are described, illustrated, and defended elsewhere (Orpwood 1980b), but two principles governed our involvement. The researchers were present to "facilitate directions chosen (in a deliberate and informed manner) by local curriculum developers, not to persuade local developers to follow directions chosen by the researchers" and to "contribute to the informed choice of directions by suggesting a range of plausible alternatives but leaving the final selection to local practitioners." (p. 114)

The meetings that we attended thus contained relatively few interventions by ourselves. The paper in which the principles were enunciated also contains a detailed analysis of all those interventions to demonstrate that the principles were in practice adhered to.

As indicated earlier, the deliberations leading to the adoption of program policies for Intermediate Science consisted of a series of seven meetings, five of the small coordinating committee and two of the larger committee of teacher representatives. Apart from the first meeting of the coordinating committee, which took place before our involvement with the Board began, we attended all of the meetings of both committees. (The first meeting, we learned later, was devoted exclusively to a discussion of the Coordinator's "process model".) Furthermore, and with the unanimous permission of those present we tape-recorded all of the discussions at the meetings. These recordings

were subsequently transcribed in full, at which point all names were removed to ensure the anonymity of participants. These six transcriptions together with the documents used at the meetings thus form the record of the complete deliberation process.

To give the reader some indication of the quantity of material this represents, Table 1 identifies the length of each meeting (in minutes) and of the resulting transcription (in pages). Meetings

Table 1

Lengths of Meetings and Resulting Transcriptions

Meeting	Duration (minutes)	Transcription (pages)	Ratio T/D (minutes per page)
CC/01	90	30	3.00
CC/02	105	35	3.00
CC/03	135	40	3.37
CC/04	120	33	3.64
TM/01	120	28	4.28
TM/02	90	22	4.09
Totals	660	188	—

of the Coordinating Committee are designated CC/01, CC/02, etc., and those of the teacher representatives as TM/01 and TM/02. For a variety of reasons, from the atmosphere of the meeting, to the audibility of the recording, to the style of typing, the meeting time and transcription length are not exactly proportional to each other. Later in this chapter, these figures are used as the basis for calculating the proportion of time spent in discussing substantive policy issues.

Primary Analysis of Data

The complete set of transcriptions (188 pages) is supported by additional documentation--Ministry of education policies, agenda for meetings, copies of a survey instrument with results that was developed and used by the Coordinating Committee, and drafts of policy statements. These form the complete record of deliberations leading to new curriculum policies for Intermediate science in this school board. They are therefore the data base for the analysis contemplated in this study. First, however, the material requires considerable sorting. On inspection, one finds that not all of the discussion recorded and transcribed constitutes deliberation over policy issues. Some of the discussion concerns the procedures to be employed by the Committee, for example. Such discussion, being of a tactical nature, can of course have an influence on the final policy decision but such influence is implicit or indirect since analysis of the text reveals no explicit attention to a policy problem. Other discussions are of a trivial nature, concerning personal matters among committee members, the making of coffee, and other matters irrelevant to policy questions. Some

preliminary sorting or primary analysis of data is thus required, which can result in the isolation of discrete policy problems or issues, each of which can then be submitted to detailed, secondary analysis using the scheme developed in the study.

After much examination of the data, a four-way categorization was found to be most useful for this primary analysis. The categories are defined as follows.

Curriculum Issue (C) : Discussion directly concerned with a policy about the content of the science program; e.g. whether or not a unit on "solutions" should be taught in grade 9.

Structural Issue (S) : Discussion directly concerned with a policy about how the curriculum should be determined or controlled, e.g. whether families of schools should select units for their areas.

Process Issue (P) : Discussion concerned with group procedure or tactics; e.g. whether the secondary school heads of science should be consulted at a particular point in the policy process.

Trivial Issue (T) : Other dicussion unrelated to the problems for which the committee was set up.

Each of the six transcriptions were analysed using this set of categories with two results. First, the data base was rendered more suitable for subsequent analysis. This of course was the purpose of the primary analysis and the nature of the resulting data is described later. But second, it is possible to give a more detailed account of the six meetings than was previously possible.

Table 2

Distribution of Time Spent at Meetings

Meeting	Time spent (in minutes) on each type of issue C	S	P	T	Total
CC/01	0	7.3	81.3	1.2	89.8
CC/02	0	0	105	0	105
CC/03	43.6	59.1	31.1	2.0	135.8
CC/04	54.4	19.9	41.8	4.0	120.1
TM/01	89.9	17.1	17.1	0	124.1
TM/02	60.3	20.0	8.8	0.8	90.1
Totals	248.2	123.6	285.1	8.0	664.9
(% of total time)	(37.33)	(18.59)	(42.88)	(1.20)	(100.0)

Table 2 presents the results of the primary analysis in quantitative form. The analysis itself of course dealt in pages of transcription. These numbers (of pages) can mean little by themselves to the reader, so equivalent times have been calculated using the ratios shown in Table 1. One can thus see, in Table 2, the way in which the total time spent at each meeting was distributed among the four types of discussion just described. As might be expected, early meetings tended to focus on procedural matters but these became much

less important in the later meetings. Apart from this observation, this primary analysis is of less value for what it shows directly than for the sorting of the data it accomplishes. Eleven hours of meeting time is reduced to just over six hours of deliberation over policy matters, both curricular and structural. I pointed out earlier that the process and trivia discussions, not being deliberation over policy, do not lend themselves to secondary analysis using the framework developed in this study.

On inspection of the transcriptions, the approximately six hours (371.8 minutes) of policy deliberation (C and S from Table 2) cover six relatively distinct clusters of issues, as follows:

S1 - The use of objectives

S2 - The size and locus of control of the core curriculum

S3 - Levels of difficulty among courses

C1 - The identification and placement of core units in grades 7/8

C2 - Courses in Physical and Biological Science vs. Integrated Science.

C3 - The identification and placement of core units in grades 9/10.

Table 3 shows the length of time spent on each of these clusters of issues at each meeting, together with the length (of equivalent time) of samples* of the issues isolated for possible further attention.

It was anticipated, early in the study, that isolation of discrete issues based on single policy questions would be a relatively

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* The term "sample" is used here to refer to portions of transcription that have been isolated from the multi-issue clusters which cover single issues only and which are therefore analyzable using the scheme developed in this study.

Table 3

Distribution of Time Spent on Issue Clusters

Issue	Time Distribution (in minutes)							
	CC/01	CC/02	CC/03	CC/04	TM/01	TM/02	Total	Sample
S1	4.9			13.3			18.2	18.2 (A)
S2			49.2	6.3	8.6	17.9	63.3	49.4 (B)
S3			1.2	6.3		12.3	19.8	13.6 (C)
C1			25.2	28.3	52.8	18.4	124.7	17.0 (D)
C2			12.2	10.0	25.7	10.0	57.9	37.9 (E)
C3			6.2	15.6	11.4	31.9	65.1	37.0 (F)
Totals	4.9	0	94.0	73.5	98.5	78.2	349.1 (94%)	173.1 (49.6%)

straightforward task. This was not in fact the case for, I believe, two related reasons, one directly related to the subject matter under discussion, the other of a more general nature. The specific subject matter occupying the bulk of the discussion of curriculum policies (especially cluster C1) concerned which of the units (of science content) specified in the Ministry guideline should be incorporated in the board's program at grades 7, 8, 9, and 10, and which other units, if any, should be recommended as options. While discussion frequently

focussed for a time on the question of a specific unit as a possibility for inclusion at a specific grade level, such a question was rarely resolved independently of the consideration of questions concerning other units at other grade levels. Deliberations tended therefore to be lengthy and issues interwoven. The second reason is simply that, by extension, it could be argued that all policy deliberation is of such a nature that consideration of several issues proceeds simultaneously and discussion of one is inevitably tied in with discussion of another. It should be noted, however, that while this situation presents technical problems of data presentation in the context of a dissertation, it does not affect the applicability of the analytical framework nor the main argument of the thesis.

Despite the difficulties outlined here, reasonably complete samples from each cluster of issues have nevertheless been isolated to represent the substance of that cluster and each is now described in summary form.

Sample A (Cluster S1)

The issue was an exception to the generalisation noted above, in that it represents the complete discussion of a relatively discrete policy question which had relatively little interaction with discussion of other policy questions. The matter was raised in the first meeting of the coordinating committee, when one committee member asked "Will this group or some group eventually have to develop a set of objectives for each bit of the mandatory core areas?" This led immediately to an answer from the chairman of the committee (the science coordinator for the board) that, while objectives should "ideally" be developed, he

doubted the value of "Mager-type objectives." He went on, "My experience, in working with teachers, both as (secondary school) department head and as coordinator is that if you begin to approach that, to building a curriculum that way, it's a good way to get rid of people in a hurry. I think we can come up with a better way." Another committee members stressed the importance of not producing "just straight lists of content" and the matter was dropped.

The issue of objectives arose again in later meeting of the coordinating committee (CC/04), though this time with a somewhat different focus. The ministry guideline specified 15 broad aims to be attended to during the span of a student's program from grade 7 to 10. This required therefore that boards determine how this should be done. Should, for example, the aims be divided up by grade level (like the units of science content) or should a balance of all 15 be maintained within each year? In addition, the implications for evaluation of the existence of several alternative aims within a program, especially for possible board-wide evaluation, were of concern to the Committee. As in the earlier discussion, no clear direction for action emerged from these deliberations. The committee never did select objectives of any kind. Some units were developed with different objectives combined with the same content and research related to this is reported elsewhere (Roberts & Orpwood 1981).

Sample B (Cluster S2)

One of the most important areas of policy relating to Intermediate science programs that were delegated by the Ministry guideline for

local boards to decide concerned the size of the core curriculum and the locus of control of the curriculum. The Ministry, through its guideline, had specified a core of 50% of the curriculum for grades 7 and 8 (and also for grades 9 and 10). Furthermore, the school board had, in an earlier policy, directed that there be a minimum of 50% common core (across the board's area) in each of grades 7, 8, 9, and 10. This allowed both for increasing the size of the core from the basic 50% and/or assigning control of some part of that curriculum to each family of schools or to each school. The teachers had been asked (in a survey) for their opinion concerning which level (Board, Family of Schools or School) should control how much of the curriculum for each grade. The results of this survey formed the basis for discussion which occupied nearly one half of one of the meetings of the coordinating committee. The sample contains all of that discussion but omits questions of clarification and other comments made on the topic at other times, which forms the balance of the cluster.

These deliberations were interesting in that they provided a good example of the clear resolution of an issue through the weighing of a number of alternative but unacceptable proposals leading to the acceptance of a compromise. It also illustrates well the style of participation used by the researchers who, while attempting to be both constructive and helpful, were also leaving matters of choice to the local practitioners. By the end of the meeting the size of the core had been agreed upon: 4 units out of 6 for each of grades 7 and 8, and 6 units out of 8 for each of grades 9 and 10. These would be specified centrally by the Board, with the balance of the program being

determined at school level after consultation at the family of schools level.

Sample C (Cluster S3)

This issue arose from the existence, in the board's secondary schools of courses, in the same subject area but at different levels of difficulty, designed for students of differing ability levels. In some schools, there are two--sometimes called advanced and general, or phase 5 and phase 4--but there may also be up to six. In the case of Intermediate science, the Ministry indicated that the guideline was to apply to the highest three levels; for this board, the key question was how to differentiate between phases (levels) 4 and 5. Apart from agreeing that "we don't want level 4 courses to be watered-down level 5 courses," there appeared to be little agreement about what was either realistic or desirable. The potential for different "curriculum emphases" to be used to distinguish different levels of difficulty was also discussed. The matter was not concluded concretely. The sample contains the essence of this discussion which appeared at several meetings.

Sample D (Cluster C1)

This cluster, more than any other, exemplifies the earlier point that separation of discrete issues is difficult when the issues are all interrelated. The group's task here involved deciding which units, from the Ministry core for grades 7 and 8, should be taught at grade 7 and which at grade 8, and also which additional units should be made

mandatory for each grade within the board's program. A survey of teachers' opinions had been taken, not concerning alternative proposals for complete programs, but concerning each unit on the Ministry's list, and in the ensuing deliberations the results of this survey were used from time to time. The coordinating committee first approved a proposal at its third meeting (CC/03) and then vigorous debate took place at the subsequent teachers' meeting (TM/01). Despite the fact that the grade 7/8 program was to have been finalized at that meeting, further discussions also took place at the next coordinating committee meeting (CC/04) and at the second teachers' meeting (TM/02). The sample selected for analysis is typical of the discussions that took place over these issues. It concerns a unit entitled "Weather" which was contained, in an early proposal, as a mandatory unit in Grade 8. (It was an optional unit in the Ministry guideline.) After deliberation, during which it became evident that there were many more arguments against its inclusion than for it, the unit was dropped from the proposal.

Sample E (Cluster C2)

In sorting units into courses, as described in the previous cluster of issues, one way presented itself immediately. There are approximately equal numbers of physical science and biological science units in the Ministry guideline; one possibility therefore is to use this as the basis for developing separate courses in physical and biological science, both at grades 7 and 8, and at grades 9 and 10. The present cluster of issues is concerned with the advantages and disadvantages of

such a course of action. In the particular case at hand, this possibility was rejected in the case of grades 7 and 8 but adopted for grades 9 and 10. Of course, discussion of these issues is related to discussions relating to the previous cluster, and the sample only contains portions of transcript where questions of a physical science/biological science distinction were the primary object of deliberation.

Sample F (Cluster C3)

The problems of selecting units as mandatory for grades 9 and 10 was similar in principle to those concerned with grades 7 and 8 (Cluster C1). Again, a number of interrelated issues were discussed simultaneously, which makes separation of discrete issues difficult. Two factors, however, made deliberations shorter, in this case. First, the decision to have one course biological and the other physical (see Cluster C2) reduced the number of alternative courses of action significantly. Second, a final decision on which additional units (from the list of Ministry options) should be made mandatory was postponed until the following year, to allow for various alternatives to be tried out. One unit, "Wise Use of Energy", however, occupied a significant proportion of the time and the sample isolated contains this discussion.

Secondary Analysis

The isolation of these six samples of deliberative discussion, representative of the six clusters of issues, completes the primary

analysis of the data. It was anticipated that the six samples of data so isolated would be equally suited to further, secondary, analysis using the framework developed earlier. Brief analyses of randomly selected portions of each sample suggested that this was in fact the case. It further suggested that secondary analysis in detail of all six samples would not be required for the framework to be adequately tested.

Accordingly, two samples were selected for complete secondary analysis. In order to provide as comprehensive a basis as possible for assessing the applicability of the framework, two were selected so as to represent several major differences among the samples. On this basis, samples B and D (see Table 3) were selected. Sample B is a lengthy discussion of structural issues, several of which were interrelated, and which affected curricula at the complete range of grades (7 through 10). By contrast, sample D is a relatively compact discussion of a single, curriculum, issue concerning the inclusion of a particular unit in the grade 7/8 program; the sample is take as representing the largest cluster of issues deliberated.

These two samples were then analysed using the framework described in chapter 4. The results of this analysis are contained in the Appendix and are discussed in the chapter following.

Chapter 6

DISCUSSION OF ANALYSIS RESULTS

Before discussing the results of the analysis of the two issues selected, it is important to recall the overall purposes of the study and to see this analysis in relation to these purposes. The primary objective of the research was the development of a scheme for the analysis of logical aspects of curriculum policy deliberation. A second objective was the exploration of its usefulness or applicability through the trial analysis of selected instances of deliberation. Analysis of many instances of deliberation is therefore not necessary to the achievement of these purposes. Nor is an exhaustive discussion of the results of the two analyses that have been carried out, which are nevertheless set out in full in Appendices A and B. In what follows, therefore, summaries of each analysis together with illustrative examples are presented. These summaries and examples then provide the background against which three elements of the analytical scheme not previously discussed in detail can be examined. These are rules of relevance, rules of superiority, and the backing for warrants. First, however, a few points to assist the reader in organizing this discussion.

Inevitably, the investigation of deliberation at only one site means that generalisations about the ways in which people generally deliberate over curriculum policies cannot be made. On the basis of only two instances covering relatively short spans of time, one cannot even generalise about the styles of deliberation of the

individuals involved at this site. However, the analysis does provoke such empirical questions and it will be argued later that is an important feature in favour of the analytical scheme. For the present, though, the purpose of the analysis is to explore the use of the scheme and its categories and to provide the basis for a reasonable assessment of its applicability.

The primary purpose of a scheme such as the one developed here is not to stimulate further empirical research, though it may in fact do so. The primary reason for its development is set out in chapters 1 and 2, namely the enrichment of our understanding of the nature of curriculum deliberation. In this respect, we are less concerned for what the specific group of practitioners illustrated by this single case do well or badly, but for the value of looking at their deliberations in this way at all. If the scheme appears to be engaging with and rendering more intelligible that which our intuition tells us is the essence of the deliberative process, then it has achieved this purpose. It has contributed to our collective insight and understanding of what curriculum deliberation is all about. In this regard, Toulmin's category of Backing and its application here will enable some discussion of the epistemological relationship of curriculum planning with other fields of endeavour.

A second purpose of the scheme, also described earlier, is the improvement of individual performance. This purpose also implies a criterion for the assessment of the analytical scheme. Russell (1980) points out that "every research paradigm contains a theory of change" (p. 118) even if it is unarticulated and unrecognized as such. And the

philosophical paradigm in which this study is set, involves, as Russell goes on to point out, the teacher's or curriculum worker's reflection on his own practice. The paradigm "provides analysis of practices in a manner which points up directly ways in which changes could be attempted" (p. 123). In the discussion of the analysis at hand, an effort will be made to show points at which questions might be raised by one having a training function in the art of curriculum deliberation. The strength of the use of this approach to improving practice is that a critique of present practice rests not on the authority of the observer but on the evidence of the analysis which the observer/analyst can share with the practitioner. More detailed discussion of how this kind of analysis might be used to improve the practice of curriculum policy deliberation will be reviewed in the context of an overall assessment of the scheme. They are recalled here to show why certain features of the analysis rather than others have been emphasised.

Analysis of Issue A
(Size and Control of Core Curriculum)

The first issue to be selected for detailed analysis, using the scheme that has been developed in the study, concerns the size of the core curriculum and the manner in which it should be determined (i.e. who should decide which units it will contain). A brief summary of the issue was provided in the previous chapter and Appendix A contains the full transcription of the discussion of the issue. The Appendix is organized in a columnar format in which the transcription is set out in

the left-hand column and the analysis in the right. Facts (F), Considerations (C), Warrants (W), and Policy proposals (p) are identified with numbers and additional comments are added to facilitate interpretation of the issue. It is strongly recommended at this point that the reader turn to Appendix A and read through both the transcription and the analysis.

From the analysis, 19 distinct argument patterns have been discerned incorporating 20 facts/considerations, 6 policy proposals, and 16 warrants. In addition, 5 other facts or considerations and 1 proposal unrelated to specific argument patterns were present. Table 4 presents the argument patterns symbolically, while Tables 5, 6, and 7 list the facts/considerations, the policy proposals, and the warrants respectively. It will be noted that some facts (F4 and F5, for example) fail to become considerations on the grounds of relevance. In the case of F4 and F5, no specific policy proposals are entailed. However there are also cases (F10 and F11, for instance), where facts clearly are offered in support of a proposal and therefore form part of an argument pattern, yet where there is no evidence that these facts are ever regarded as considerations. This phenomenon occurs periodically and often enough to suggest that the scheme requires some refinement to reflect the fact that facts that do not become considerations can also support policy proposals. This point is taken up in the next chapter.

Table 4

Argument Patterns: Issue A

		Facts/Considerations	Warrants	Proposals
1	a	F1/C1	W1	p1
	b	F2/C2	W1	p2
	c	F3/C3	W1	p3
2		F6/C6	W2	p2
3		F7/C7	W3	p5
4		F8, F9/C8, C9	W4,W5	p3
5		F10	W2	p5
6		F11	W1	p3
7		F12/C12	W3	p3
8		F13/C13	W6	p5
9		F14	W7	p5
10		F15/C15	W8	p5
11		F16/C16	W9	p5
12		F17/C17	W10	p3
13		F18/C18	W11	p6
14		F21/C21	W12	p7
15		F22/C22	W13	p7
16		F23/C23	W14	p7
17		F24/C24	W15	p7
18		F9/C9	W5	p7
19		F25/C25	W16	p3

Table 5

Facts and Considerations: Issue A

F1/C1	Consistently people are saying that the board should control more than 50%.
F2/C2	A majority of people wanted little or no control at the family-of-schools level.
F3/C3	A significant number of people wanted some control to be exercised at the school level.
F4	The majority of responses are from the 9/10 level.
F5	60% from 9/10 don't want anything done at the family-of-schools levels (it looks as though the high school people don't want the public school people coming interfering up there).
F6/C6	It's simply my opinion that I think that it would be better for the system if we had 6 (mandatory units) out of 8 (at grades 9 and 10).
F7/C7	Without having any family-decided-upon units, we're losing part of the main advantage of the new guideline where we have more cooperation between the two panels, and thus lose an opportunity to ensure continuity in students' programs.
F8/C8 F9/C9	The data that came back is reinforcing very loud and clear what actually is happening out there and what is likely to happen.
F10/C10	(Implementation of a policy) depends on what your superintendent, principal, department head, and teachers are like.
F11/C11	It's just not going to happen; and I don't think it would be realistic.
F12/C12	The core units provide adequate continuity between grade levels.
F13/C13	Getting the family of schools together can facilitate taking advantage of local situations.
F14	Say I want to do machines (in 9/10) it would be nice if I knew whether the feeder school was doing something with machines in 7 or 8.

(Table 5 - continued)

F15/C15	(If we don't have family-of-schools planning) we are missing a good chance just to know who the people are.
F16/C16	One possible consequence of not having planning at the family-of-schools level is that students may enter secondary schools from different elementary schools having had very different backgrounds.
F17/C17	Family-of-schools planning is impractical.
F18/C18	The teachers will choose to use units that are the easiest to teach.
F19/C19	It is an official policy of the board that families of schools should consult together over curriculum matters.
F20	There is nothing in the Ministry policy documents to say that planning should take place in families of schools.
F21/C21	While members of families of schools have an interest in each other's curricula, they do not have an overriding interest.
F22/C22	Proposal p7 would preserve the autonomy of each level of school to make decisions concerning their own program.
F23/C23	Proposal p7 would enable disagreements to be tolerated if not resolved.
F24/C24	Proposal p7 provides for flexible interpretation in implementation.
F25/C25	There probably will not be adequate time for proposal p7 to be implemented.

Table 6

Policy proposals: Issue A

p1	At both grades 7 and 8, the core curriculum consist of 4 of the total of 6 units which will comprise each course (67%).
p2	At both grades 9 and 10, the core curriculum consist of 6 of the total of 8 units which will comprise each course (75%).
p3	The balance of each course (7-10) be optional and up to each school to decide (although consultation will be recommended).
p4	One course for 7 and 8 be recommended at the family-of-schools level.
p5	Some form of family-of-schools planning be required.
p6	The selection of optional units be recommended centrally.
p7	That individual schools draft their own options and, while still in draft form, circulate them to other members of the family of schools for comment.

Table 7

Warrants: Issue A

W1	The extent and locus of control of the curriculum should be determined on the basis of teacher opinion.
W2	The judgment of the science coordinator of the needs of the system should be a consideration in determining the extent and locus of control.
W3	Continuity in students' programs is desirable.
W4	It is not worth developing a policy that is substantially different from present practice or
W5	that is unlikely to be implemented.

(Table 7 - continued)

W6	It is desirable to take advantage of local situations when planning curricula.
W7	It is important for secondary schools to know what is being taught in grades 7 and 8.
W8	Personal contact among teachers at different schools leading to professional interchange is desirable.
W9	Communication among schools is desirable.
W10	Policies should be feasible.
W11	It is desirable to steer teachers' choices among units by making some options easier to implement than others.
W12	It is important to give stakeholders in the curriculum a voice in the decision-making process while not allowing them to override each other's prerogatives.
W13	Schools should have autonomy over their own programs.
W14	Disagreements over curriculum matters should be tolerated if not resolved.
W15	Flexibility in the implementation of a policy is desirable.
W16	It is important that there be adequate time resources for a policy to be implemented.

A clear illustration of the development of an argument pattern in the context of this deliberation and of the way in which the scheme reveals its components is provided by argument pattern #3. Discussion relevant to this begins on page A3, where speaker D, who turns out to be the major protagonist <u>for</u> curriculum planning at the family-of-schools level, raises a point concerning the continuity of a student's program through grades 7 to 10. He states:

> Surely when the 7 and 8 core are set up, and then the 9 and 10, there's going to be continuity there and that's what we're after (A: Yeah) So we are going to ensure that the units in 9 and 10 are a follow-up to those that are in 7 and 8.

The desirability, in principle, of there being continuity is not raised here in connection with a specific proposal but as a point of clarification, reminding the rest of the committee of what they are about. In retrospect, we can see that this principle is a warrant (W3) in-the-making for an argument which D develops a few minutes later. At this point, the tide of discussion led by A is running against the notion of family-of-schools planning. Proposal p3 is on the table "recommending consultation" though few of the group seem to have many illusions as to the likely consequences if it becomes policy. The committee chairman (A) has stated (page A3):

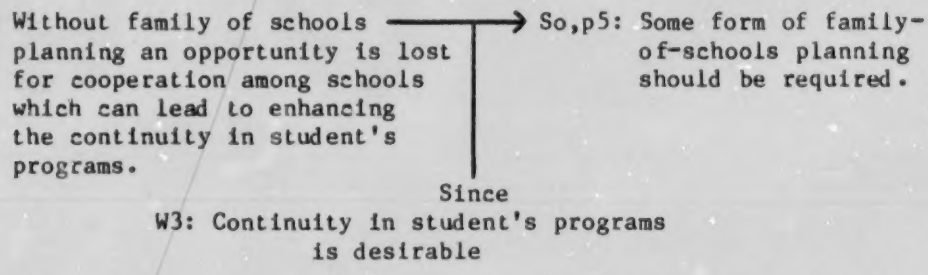
> They (the teachers) are saying "No" and I think we'd be ill-advised to try and dictate otherwise.

A compromise proposal p4 (on page A3) from C suggesting that one unit at 7 and 8 be recommended has not been given much serious attention. D therefore again raises his concern for continuity, generally assented to earlier. This time he is talking not just at the general level of principle but at the specific level of the situation at hand. He says:

> The only thing that bothers me, A, is that, without any family decided-upon units, we're losing part of the main advantage of the new guideline where we have more cooperation between the two panels and we're simply then going to say that we are going to follow along with what's been prescribed. Which gives us more continuity but I would still like to sit down with the feeder schools and decide: Well, OK, maybe not one unit; which am I doing and which are you? Maybe, we can discuss...

Application of the scheme to this portion of the transcription enables one to discern firstly the factual claim F7 that "without any family decided-upon units, we're losing... (the opportunity for)... more cooperation between the two panels." Without such cooperation, there

can be no systematic attempts at ensuring the continuity of a student's program, which recalls D's concern expressed earlier. While D does not phrase a proposal in formal terms, his words "I would still like to sit down..." etc. suggest the proposal (p5) that some form of family-of-schools planning should be required. This speech by D is responded to sympathetically by A ("D, I would have loved a nice clear base from the system...") thus recognizing D's contribution as a consideration. The argument pattern, then, rephrased for the sake of succinctness can be seen to flow as follows:


F7/C7: Without family of schools planning an opportunity is lost for cooperation among schools which can lead to enhancing the continuity in student's programs.
So,p5: Some form of family-of-schools planning should be required.
Since
W3: Continuity in student's programs is desirable

This argument then stood in opposition to the original proposal (p3), until eventually a compromise proposal (p7) was accepted as policy.

Concerning the family-of-schools planning issue, six arguments (#1, 4, 6, 7, 12, and 19) conclude in support of p3 (the proposal for no such planning to be mandated as policy) and six arguments (#3, 5, 8, 9, 10, and 11) conclude in support of p5 (that some form of family-of-schools planning be required). Two proposals (p4 and p6) are presented as alternative attempts at resolution of the issue. p4 (on page A3) is not argued for at all and is not therefore represented in the table of argument patterns. p6 is argued for (pages A12-13, argument pattern #13) but is not considered further. Finally, p7 is introduced as yet another attempt at compromise and develops

enough support to become the agreed-upon resolution. In this process, five arguments (#14, 15, 16, 17, and 18) are offered in its support.

The other issues involved in this discussion, the size of the core programs at grades 7 and 8 and at grades 9 and 10 are agreed with minimal discussion. Only two arguments (#1 and 2) are advanced in relation to these matters and no contrary proposals are presented. Proposals p1 and p2 become policy with little ado.

At this point, it should be noted that the analytical scheme has successfully revealed all the logical "moves" in the deliberations over these issues. The illustrative example of one argument pattern has shown the depth of detail to which the analysis is capable of penetrating. Further consideration both of the substantive nature of the warrants used to support proposals, and of the rules of relevance and superiority seen to be applicable is deferred until the analysis of the second issue has been discussed.

Analysis of Issue B (Weather)

Appendix B contains the transcription of deliberations centred on a second issue which provoked discussion and argument. The issue is summarised in the previous chapter, but it is recommended that the reader examine the transcription and accompanying analysis in full before proceeding. This issue contrasts with issue A since it deals with a substantive curriculum problem, that of whether or not to include a unit on "Weather" in the grades 7/8 core program, rather than with a structural problem. However, as becomes clear when the

transcription is studied, discomfort over a substantive matter can lead readily to questions of a structural or procedural nature (see, for example, the discussion on page B4). Of course the procedural arguments do influence the course of the "Weather" deliberations and, for that reason, they are included in Appendix B, but they are, technically, arguments of a different order. Accordingly, in the analysis of the "Weather" issue, these matters are simply labelled "Process" and not analysed further. Thus the focus of analysis is kept to the one substantive issue.

The analysis of the issue reveals 9 argument patterns (Table 8) supporting 5 proposals (Table 10) based on 11 Facts (Table 9) and 6 Warrants (Table 11). In addition 1 Fact and 2 Warrants are presented outside of any specific argument patterns. Arguments over this issue were essentially very straightforward since they can be classified as either being for (#1, 2, and 8) or against (#3, 4, 5, 6, 7, and 9) the inclusion of the unit "Weather" as a core unit in grades 7 and 8. Proposal p1 expresses the positive position while p2 is simply the opposite one. Proposals p3, 4, and 5 provides more explicit alternatives to Weather and as such subsume the spirit of p2 within them. In the end, the issue did not appear to have been resolved by the meeting. However, the next written version of the draft program to appear incorporated p4 as the recommended policy. It can therefore be concluded that this was the resolution of the matter.

Table 8

Argument Patterns: Issue B

	Facts/Considerations	Warrants	Proposals
1.	F1/C1	W1	p1
2.	F2/C2	W2	p1
3.	F4/C4	W3	p2
4.	F5/C5	W4	p2
5.	F6, F7/C6, C7	W7	p3
6.	F8, F9/C8, C9	W2	p4
7.	F10/C10	W8	p4
8.	F11/C11	W8	p1
9.	F12	W4	p5

Table 9

Facts and Considerations: Issue B

F1/C1	Virtually all the optional units in 7 and 8 contribute to the study of Weather.
F2/C2	Weather would appear to be a good place to pick up a lot of the tag ends ... that you're not going to deal with as a full-blown unit.
F3	Weather belongs more in Geography than Science.
F4/C4	Weather is also a unit in the junior program (in grade 6).
F5/C5	Weather is marked (in the teacher survey) as a low priority option and then again by only 53%.

(Table 9 - continued)

F6/C6	Water and Solutions, being a more concrete topic is more suited to grade 7 than Force and Energy.
F7/C7	There is a significant difference in the maturity and readiness of the students between grades 7 and 8.
F8/C8	From the ecological point of view, Structure and Life Cycles is very important.
F9/C9	Structure and Life Cycles ties physical and biological material together in an ecology unit.
F10/C10	Structure and Life Cycles allows for a lot of open-endedness, field work and so on.
F11/C11	There is also open-ended work that one can do with Weather.
F12	The teachers at elementary level might prefer Weather to be taught as an extension to another unit (Forms of Energy, for example).

Table 10

Policy Proposals: Issue B

p1	To include the unit, Weather, in the core program for grade 7/8.
p2	Not to include Weather in the core program for grade 7/8.
p3	For one year, the 6 Ministry core units and Water and Solutions be the core program.
p4	That Structure and Life Cycles replace Weather.
p5	That Weather be replaced by Forms of Energy.

Table 11

Warrants: Issue B

W1	It is desirable to use a unit that combines aspects of several others together.
W2	A unit is a good one if it picks up topics covered inadequately elsewhere.
W3	It is undesirable for a unit to be repeated in consecutive grades.
W4	The amount of teacher support for a unit should be the basis for a policy decision.
W5	It is desirable when selecting content to take into account a student's background and personal goals.
W6	The satisfaction of teachers following trial use of units is a good way to determine the selection to be contained in the core.
W7	More abstract units should be placed in higher grades.
W8	Good units provide opportunities for field work and other open-ended activities.

An illustrative argument pattern is represented in full below.

F4/C4: Weather is also a unit in the junior program (grade 6). → So, p2: Weather ought not to be included in the core program for grades 7/8.

Since,

W3: It is undesirable for a unit to be repeated in consecutive grades.

This argument is presented (page B2) by an elementary school teacher, whose school contains both grade 6 and grades 7 and 8. Its acceptance by the chairman (A) shows that the Fact raised (F4) is indeed a consideration (C4). While neither the warrant nor the proposal in this case is stated explicitly, both are readily inferred from the context.

T(E): But it's (Weather) also a unit in the junior, A. We just got that implemented in the grade 6, now we're doing it in 7. You see, most senior publics are 6, 7, and 8, and we seem to be really overlapping the junior program.

A: Yeah, you're right.

T(E): So you should put a gap in between maybe.

No further discussion on this argument took place but the point had been made.

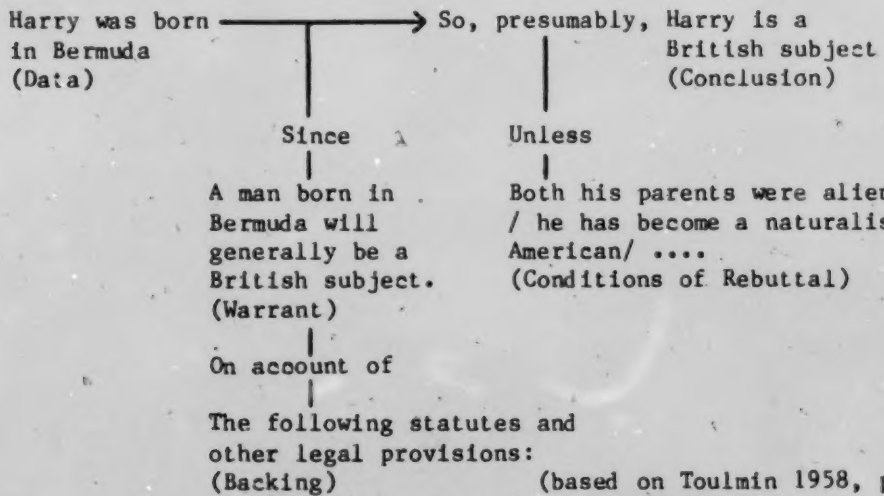
In this issue, there are two instances (one on each of pages B4 and B5) in which statements are made which have the form of general principles or warrants (W5 and W6) but which, through lack of specific facts or proposals do not form part of any argument pattern. This phenomenon is another instance of a case in which the original analytical scheme (which presupposes warrants to be present only when Facts have become established within accepted argument patterns) requires refinement. The matter is reviewed in more detail in chapter 7. Apart from these instances, the analysis again revealed the logical moves in the deliberation over this issue and also the depth of detail of the penetration. The warrants from both this analysis and from the earlier one are next discussed in more detail.

Warrants and Their Backing

Warrants, being statements of principle, are of central importance to arguments, and one of the byproducts of the use of the analytical scheme developed in this study is that the particular warrants used in curriculum deliberation are exposed to view, as it were. As Toulmin (1958) points out, they can be the basis of challenges to arguments and challenges, moreover, of two sorts.

> In addition to the question whether or on what conditions a warrant is applicable in a <u>particular</u> case, we may be asked why <u>in general</u> this warrant should be accepted as having authority. (p. 103)

Warrants have authority, as Toulmin goes on to show, because they are backed by assurances derived from the nature of the field in which the argument is taking palce. Thus, backings may be expected to differ substantially if they are drawn from such diverse fields as law, science, and history. The example, Toulmin uses to clarify his point illustrates the concept well. The complete argument pattern runs as follows:


Harry was born in Bermuda (Data)
So, presumably, Harry is a British subject (Conclusion)
Since
Unless
A man born in Bermuda will generally be a British subject. (Warrant)
Both his parents were aliens / he has become a naturalised American/ .... (Conditions of Rebuttal)
On account of
The following statutes and other legal provisions: (Backing)

(based on Toulmin 1958, p. 105)

As this illustration shows, Backing statements are responses to the question "What is the basis for believing this warrant?" They are thus epistemological in status; they show the basis of knowing or believing in certain types of warrant.

Consideration of the warrants used in curriculum arguments can lead us to ask, first, "What is the backing for these warrants?"

and second "How do these backings serve to distinguish the field of curriculum argument?" Of course, on the basis of a single study of a single set of deliberations, one cannot move directly to more general claims about the field but an examination of the warrants revealed by this analysis can perhaps suggest directions such an inquiry might take.

In the case of Issue A, 16 different warrants were found to have been employed (Table 7). However, it should be noted that they were not all of equal significance. In particular, W1 ("The extent and locus on control of the curriculum should be determined on the basis of teacher opinion") was the warrant for the only argument in support of proposals p1 and p2 (which dealt with the extent of the core curriculum in grades 7-10). In the case of the discussion of curriculum planning at family-of-schools level, there were many arguments on both sides of the debate and the final compromise proposal (p7) was not one for which anyone could claim either teacher support or opposition.

The warrants used in deliberating issue A can be divided into two clusters. Some (W1, W2, W4, W5, W10, W11, W12, W13, W14, W15, W16) would appear to be based in a view of the curriculum policy process that is essentially a realistic, pragmatic, or political one in which the result is a trade-off among considerations of "who wants what" and "what is feasible." Others (W3, W6, W7, W8) seem to reflect a more idealistic or rational view of the process. If one rereads the transcription from this perspective, one can see that the "political" view is dominant in the contributions of some participants (particularly A, the Coordinator of Science for the school board) while the "rational" view is dominant among others.

While it is difficult to formulate precise backing statements that would ground all of the warrants in each cluster, it is at the level of backing that the two different views of the curriculum policy process can be seen most clearly. I have elsewhere traced these two views about curriculum to their philosophical roots by showing that they are paralleled by similar schools of thought in the field of jurisprudence (Orpwood 1978). In that analysis, I argued that one of the characteristic tenets of the rationalist conception of curriculum policymaking is that "the selection of objectives is improved, even validated by using knowledge about learners and learning, about the social milieu, and about the nature of the subject matter of schooling" (p. 23). By contrast, the political conception sees the school curriculum as the product of trade-offs among competing interests or forces and the intervention of an authoritative decision-maker or decision-making group. These two conceptions in their wholeness can, it would seem, function as backing for the warrants apparent in these deliberations.

Issue B has fewer warrants (8) and the balance of these among the two views described earlier would appear at first sight to lean more toward the rational view (W1, W2, W3, W5, W7, W8) and away from the political view (W4, W6). However, in this case the tone of the meeting conveyed most forcefully the political view. In Issue A, the Coordinator proposed p3 on the basis of a warrant grounded in the political view. Contrary arguments (e.g. by D) tended to come from the rational point of view. In Issue B, the situation was reversed. Again the coordinator opened with a proposal (p1) but based, this time, on

rational grounds. As the meeting proceeded and arguments against the inclusion of "Weather" based on a rational view seemed to make little progress, the political view became more clearly expressed (e.g. at the bottom of page B3).

It must again be emphasised that this use of the political-rational conceptualisation to account for differences among types of warrant is not presented here in order to make claims concerning the nature of curriculum policy deliberation in general. The very restricted data base of two samples of deliberation from one site are quite inadequate for such a broad statement. Rather, it is presented as an illustration of how warrants must have backing and how such backings reflect beliefs or understanding about the nature of the enterprise. As I have argued in another place, however, I believe that the political-rational conceptualisation has the power to account for differences in views of the curriculum process but the data in this study is scarcely adequate to defend that claim here.

It is, of course, to the objectives of deepening our understanding of the curriculum enterprise and relating this enterprise epistemologically to others that this part of the analysis has the potential to contribute. The individual curriculum policymaker is likely to be less interested in the backing of the warrants he is using except insofar as it can illuminate for him the basis of some of the sharp disagreements that take place. When individuals do not recognize or accept one another's backing statements, they do not share a common basis for arguing. And, lacking a common basis for arguing, disagreements cannot easily be resolved.

Rules of Relevance and Rules of Superiority

Rules of Relevance

It is evident from even a brisk reading of the transcriptions of each issue that some claims are advanced that seem to have little impact on the flow of deliberation. They are dismissed, as it were, before they are even admitted. In the course of developing the scheme it was anticipated, on the basis of Baier's analysis of the concept of deliberation, that this filtering would apply exclusively to facts. Hence, the Facts -- Considerations -- Reasons sequence of elements was incorporated into the analytical scheme. And indeed, there are instances of facts not becoming considerations (e.g., in issue A, F4, F5, F19 an F20, and, in issue B, F3). And one can see that in each of these instances, a (usually intuitive) judgment is being made concerning the relevance of the fact in question. Rules of relevance of some kind are being applied, though in no case in the course of these transcriptions was the application of such a rule made explicit. The reader must thus infer from the absence of any response to an intervention and the continuation of the discussion in the direction it had been moving before the intervention that the intervention had been ruled as no relevant. In one case (F5 on page A2), the fact was ruled out because it was a claim of doubtful validity and was therefore inadmissible as a consideration.

The data base, from which to claim which rules of relevance were in use in these samples of transcription, is too limited for any useful conclusions to be drawn concerning their substance. However, there is evidence that some form of filtering on the grounds of

relevance was taking place and thus, as an analytical category, "rules of relevance" seem to be justified. Further investigation is required in order that the nature of these rules, as they are used in practice, can be more adequately conceptualised.

What was not originally envisioned in the analytical scheme was that warrants and proposals might also be submitted to a test of relevance in the same manner as factual contributions. Yet the evidence seems to suggest that this can also take place. In issue A, for example, proposal p4 (on page A3) is not advanced beyond an initial entry point; it fails to become a consideration. In issue B, two warrants (W5 and W6) also fail to become parts of argument patterns, owing to lack of facts relevant to the particular situation at hand. There are also cases of complete argument patterns which fail to become considerations (in issue A, #5, 6, 7, and, in issue B, #9). It would appear therefore that the concept of rules of relevance must be refined to reflect the evidence that all components including complete argument patterns can drop out of consideration at an early stage. This refinement of the scheme is discussed in the following chapter.

Rules of Superiority

As deliberation proceeds towards its resolution, certain proposals together with the arguments put forward in their support can usually be seen to outweigh others. There is, in effect, a crude and implicit ranking of arguments being made, if only into the two categories for and against a particular set of proposals. For the purposes of this ranking, rules of superiority are being applied, again usually

intuitively, and the evidence of a final choice can be used to infer something of the rules being applied.

In the case of the deliberation over issue A, proposals p1, p2, and p7 became the final policies. In the case of p1 and p2, it was noted earlier that these proposals were unopposed and therefore not debated. Proposal p7, by contrast, was approved following much discussion over the rival proposals p3 and p5. Indeed, p7 was developed as a compromise proposal to try to recognize the most strongly argued political claims behind p3 and also the rational support for p5. This compromise character was expressed first in political terms (argument pattern #14 using warrant W12). Additional support was then provided to the proposal by arguments based on further political considerations (e.g, argument patterns #15, 16, 17 and 18). From this evidence, it might be concluded that the political considerations were seen as being of superior weight to the rational ones. Two qualifications to this judgment should also be noted, however. One concerns the amount of evidence. The participants were not asked explicitly to discuss their beliefs concerning their sense of which consideration ought to be, in general, of more importance. The inferences being made here require additional confirmation, therefore, before one's confidence in them can be very strong. Secondly, the influence of the rationally based arguments in support of proposal p5 cannot be underestimated. D, the principal advocate of family-of-schools planning could argue that p7 represented evidence of the superiority of his major arguments concerning the importance of continuity in student's programs. It could be that the outcome of the

deliberations and the rules of superiority particularly would be described quite differently by such a participant than by another one.

Issue B similarly provides evidence whose interpretation is open to alternative points of view. On the one hand rationally based arguments against the inclusion of Weather (#6 and 7) could be held to outweigh other equally rational arguments in its support (#1 and 2). However, as mentioned earlier, an observer at the meeting or a reader of the transcript could also point out that the much larger number of people who indicated their disapproval of "Weather" compared with those in favour of it (see the straw vote on pages B7 and B8) added a non-verbal political pressure to the deliberation. All that was required at that stage was a plausible alternative supported by reasonable arguments for which would allow the Coordinator (who had proposed Weather it the first place) a graceful retreat. In this situation, it is doubtful whether rules of superiority in the strict sense could be said to be operating. Unless, that is, one were to count the straw vote as an "argument" in its own right in which case, it could be said to have outweighed all the other arguments.

Summary

This chapter has sought to present the evidence of the analysed transciptions and to use this evidence to illustrate and discuss each of the components of the analytical scheme developed in the study. In turn, this discussion provides the evidential base on which the

following chapter is developed. There, the scheme itself rather than the analysis is the focus of attention and questions are raised concerning its adequacy and applicability. Answers to these questions can lead to the refinement of the scheme itself.

Chapter 7

ASSESSMENT OF APPLICABILITY

The purpose of that part of the research reported in this chapter is two-fold. The theme is one of evaluation, but the aims are both formative--refinement of the analytical scheme--and summative--demonstration that the original problem of the study has been adequately resolved. In the present chapter, three tests are described, used, and their results discussed, each of which contributes to both of these. In the final chapter, the aims of the research are revisited by way of drawing the study to a conclusion.

The three tests to be applied to the trial use of the analytical framework were set out in the proposal for the research in the form of three questions:

(1) How comprehensive an analysis of issues does the framework permit?

(2) Is there any evidence of redundancy among the categories of the framework?

(3) How adequately can the framework be used by one not party to the original deliberations?

The first two of these questions are concerned for a minimal level of technical adequacy of the scheme: Does it perform the task for which it was designed? The third question moves beyond this minimum level of adequacy to the question of portability: Can it be used by others and produce the same results? These are the sort of questions that one would need to ask following the design of any new tool and they represent only an initial series of investigations concerning the

usefulness and potential of the scheme. While attempts are made here to apply these tests relatively rigorously, the broader issues of applicability can only be speculated upon for lack of evidence at this stage. The concluding chapter will address this point further in the context of a review of the original purposes of the research.

It was pointed out earlier that the purpose of this assessment is two fold, formative and summative. Each of the three questions has been phrased carefully so as to allow for answers to lead in both of these directions. For the present, it is formative evaluation that is of greater importance. The scheme was applied to the transcribed issues in its original form as outlined in chapter 4 of this dissertation. As this trial application was conducted, there were occasions when difficulties were encountered in the analysis which were attributed to inflexibilities and other problems of the scheme itself. (These were noted periodically in the account of the analysis set down in chapter 6.) Now, by means of the three tests to be applied, the opportunity is presented for a systematic appraisal of the scheme, for consideration of the nature of any inflexibilities or problems, and for the development of appropriate modifications or refinements in the light of this consideration.

The summative evaluation is necessarily more conclusive. It is designed to yield information on the basis of which a judgment can be made concerning the overall applicability of the conceptualisation and of the resulting analytical framework. In either case, whether the aim is formative or summative, the first requirement is for systematic and objective assessment.

Test #1: Comprehensiveness

If the analytical framework is to be judged adequate or applicable, it must clearly allow for all of the logical moves in deliberations to be identified. There are two problems involved in trying to devise an objective test of such comprehensiveness. First, there is a natural tendency for "logical move" to be defined in terms of the products of the analysis process. The use of a measure of logical moves based on such a definition to appraise the analytical scheme thus entails a circular argument. Second, the use of a measure not based on any notion of logical move, such as the number of lines of transcription (as originally suggested in the research proposal), fails to take account of the fact that the analytical framework was only designed to identify logical moves and the number of lines in a piece of transcription may have little or no relation to the number of logical moves it contains.

In view of these difficulties, one is obliged to use a more holistic or overall judgment of this test, based on one's reading of the transciption and of the corresponding analysis. The investigator has conducted such a review and his comments on this matter, in relation to each of the two issues analysed, follow. The reader is invited to make a similar assessment.

In issue A, the structural policy question of family-of-schools planning, the analysis would appear to have identified all of the significant moves leading to the final determination of the policy in this area. It is helpful to the analyst that in the transcription of deliberation concerning this issue, there is relatively little

unrelated or extraneous discussion which requires accounting for. There are gaps in the analysis for discussion of procedural matters (pages A16-A17) and for some discussion of totally extraneous matters (pages A21-A22), but for the most part all the discussion is to the point and all of that is analyzable in terms of the elements of the framework. No arguments are made that have not been noted. The analysis is therefore judged to have been adequately comprehensive.

Issue B (Weather) was deliberately selected because it was a matter of curricular substance and here the balance between discussion devoted to the substantive question and that focussed on procedural matters was significantly different from that encountered in issue A. If the balance in A between central policy question and process discussion was 1:10, that in B was more like 1:3. The focus of the analysis was restricted to deliberations concerning the primary question and thus there are more frequent gaps in the analysis as one scans the transcription. However, if the balance factor is taken into account, the analysis of this issue can be assessed as being equally comprehensive as that of issue A. No substantive arguments have been omitted. However, as was pointed out in the discussion of this issue in the previous chapter, there were extensive non-verbal contributions to the deliberations in this meeting, the most observable of which was the straw vote (pages B7-B8). For the scheme to be most useful in the analysis of the complete deliberation, an observer's notes of such non-verbal contributions are clearly important as a suppelement to the transcription.

From these appraisals, two important, conclusions may be drawn. First, the scheme's elements seem to be adequate for the identification of the logical components of the deliberation. New elements or a radical reconceptualization of the relationship among the present ones do not appear to be required. Second, the primary goal of this research, that of developing a scheme capable of revealing the logical features of curriculum deliberation, would appear to have been achieved, at least on the evidence of this test of applicability.

This claim for relative success does not of course mean that the scheme cannot be improved. The discussion of the analyses contained in the previous chapter did reveal certain inflexibilities of the scheme whose elimination will enable the analysis to proceed more smoothly. These matters are addressed after the second test of applicability has been discussed.

Test #2: Redundancy

While the focus of the first test is on the deliberation, whose analysis the scheme is designed to facilitate, the focus of the second is on the analytical scheme itself. Having been satisfied that essentially all of the significant moves in the deliberations have been accounted for, we must now ask whether the elements or categories of the scheme were all used or whether some were found to be redundant. Also in this test can be considered the question of the relationship among the elements: Were these relationships found to be as envisioned when the scheme was developed? As was the case with the first test, the purpose of asking these questions is both formative and summative, the refinement of the scheme and the appraisal of the thesis.

There are seven primary and two secondary elements shown in the original scheme. These are as follows:

Primary Elements	Facts Considerations Reasons	Potential Warrants Warrants	Policy Proposals Policies
Secondary Elements	Rules of Relevance Rules of Superiority		

In regard to the primary elements (those identified directly through the analysis of the transcription), all of these were found to be of use, though the final policy arguments with reasons and warrants were not set out formally in the case of either issue A or issue B. Similarly, it was concluded that both rules of relevance and rules of superiority were being applied in the deliberations that were analyzed.

However one problem was encountered in the analysis which can be attributed to a weakness in the design of the scheme itself. It was found that general statements of principle (potential warrants) and unargued proposals were put forward from time to time. These clearly did not belong to a formal argument pattern nor could it be said that they were always accepted as matters for consideration by the deliberating group. Yet the scheme, as it stands, only sees warrants and proposals being developed <u>after</u> a fact has become a consideration and then in the context of an argument pattern. What seems to be needed are two additional categories corresponding to warrants and proposals but at the same tentative level as that of facts. These additional categories would not necessarily be linked in an argument pattern to each other, since at this stage they are relatively isolated fragments of arguments. Nor, therefore, would the term "warrant" be

necessarily appropriate since that implies a functional role in an argument. Chapter 8 contains a revised version of the scheme incorporating these modifications. The changes will recognize the truly dynamic character of deliberations in reality, where no rules exist concerning who may say what and at what stage. The evidence is clear that any component of an argument may be entered at any time. The analytical scheme, if it is to be most useful, will reflect this feature.

Having attended to this problem, it can be concluded by way of an overall judgment on the scheme, that the analytical categories were indeed adequate for the task for which they had been designed. The scheme not only permits complete analysis of the logical moves in deliberation, it does so with no redundancy of its own categories.

Test #3: Portability

A third measure of the applicability of the analytical scheme developed in this study is its portability: Whether it can be used effectively by someone who was neither a party to the deliberations nor an originator of the scheme itself. As the investigator in the present study, I clearly had the potential for using two sorts of personal knowledge in analysing the samples of deliberative transcript not available to another individual. On the one hand, as the developer of the scheme, I understood what I meant by its categories (as distinct perhaps from what I wrote about them). I possessed therefore an inevitably personal knowledge of the scheme itself. Secondly, I was a participant-observer at the scene of the deliberations. I knew the

other participants increasingly well during the period of observation. I therefore, again inevitably, possessed a mass of personal knowledge about the context and background to the deliberations beyond that which appears in the transcriptions or in the brief accounts provided in this dissertation.

The question, therefore, must be raised concerning the degree to which these types of personal knowledge are essential to my successful application of the scheme or whether, on the other hand, the scheme can be used adequately by another person having only limited information about each of these areas. To put this matter to a test, another doctoral student in science education, who had had no previous detailed knowledge either of the analytical framework or of the deliberations, agreed to conduct an analysis of one of the same samples of deliberation as was analysed by the investigator himself (Issue B: Weather).

The individual was provided with a copy of the thesis proposal which included the scheme as outlined in Chapter 4. In addition she was provided with Issue A fully analysed and some general background on the deliberations, comparable to that provided to the reader in chapter 5 of this document. After having read through this material and clarified matters of uncertainty, this student colleague was provided with an unanalysed version of Issue B and was asked to conduct a full analysis. After this work was completed, the investigator had a further one-hour conference with her, to clarify her notes and to obtain orally her general assessment of the difficulties she had experienced in attempting the analysis.

As was the case with the two tests described earlier, the investigator had two objectives in conducting this test: to discover ways in which the framework could be refined or improved, and to determine whether or not it could be claimed to be applicable. As with the first two tests also, evidence from this third and final test proved to be constructive and positive on both counts. As will be described, suggestions for improvement were forthcoming; yet the overall judgment of the scheme was, in the words of my colleague, that it "worked very well."

The evidence from this test is of two sorts, that gained from the comparison of the investigator's analysis and from my colleague's analysis, and that acquired in subsequent discussion with this second analyst.

As was indicated earlier, the analysis of Issue B was complicated by the frequent moves by the deliberators away from the original question (concerning Weather) to matters of a procedural or structural nature. This complication leaves any analyst with a dilemma: whether or not to regard deliberation over these "process issues" as part of the analysis of the original issue. One can argue that since they are not strictly deliberations concerning the same issue they should not be included; the investigator, it will be recalled, chose this alternative labelling these other deliberations as "process" and passing over them in the analysis. My colleague, in her work, chose the other option on the assumption that since the original issue gave rise to the procedural issues, the outcome of the latter is likely to be of significance to the outcome of the former. She

therefore included analysis of these deliberations in her own version. While the plausibility of both of these two interpretations raises important questions, it was necessary, in order to be able to conduct a comparison, to stipulate one interpretation. The investigator's original judgment was therefore used as the basis for comparison and corresonding adjustments made in the second analysis.

Having made these corrections, correspondence was found to exist between the two analyses in the use of each of the major categories of the scheme. The three diagrams in Figure 5 show the overlap for each category. Overall, of the 25 logical elements identified by the investigator and the 28 identified by his colleague, 19 were in common, which represents a significant degree of overlap or correspondence. Of more value, however, than any numerical representation of the correspondence or lack of correspondence is the evidence arising from subsequent discussion concerning the substance of any differences in analytical results and the possible reasons for such differences. From this discussion, three types of problem for an analyst, other than the investigator, emerged as most significant. These can be described as "category problems" relating to the adequacy of definition or design of the scheme itself, "focussing problems" relating to the degree of detail an analyst can expect the scheme to clarify, and "interpretive problems" relating to the nature of the deliberations under analysis. Each of these is next described briefly.

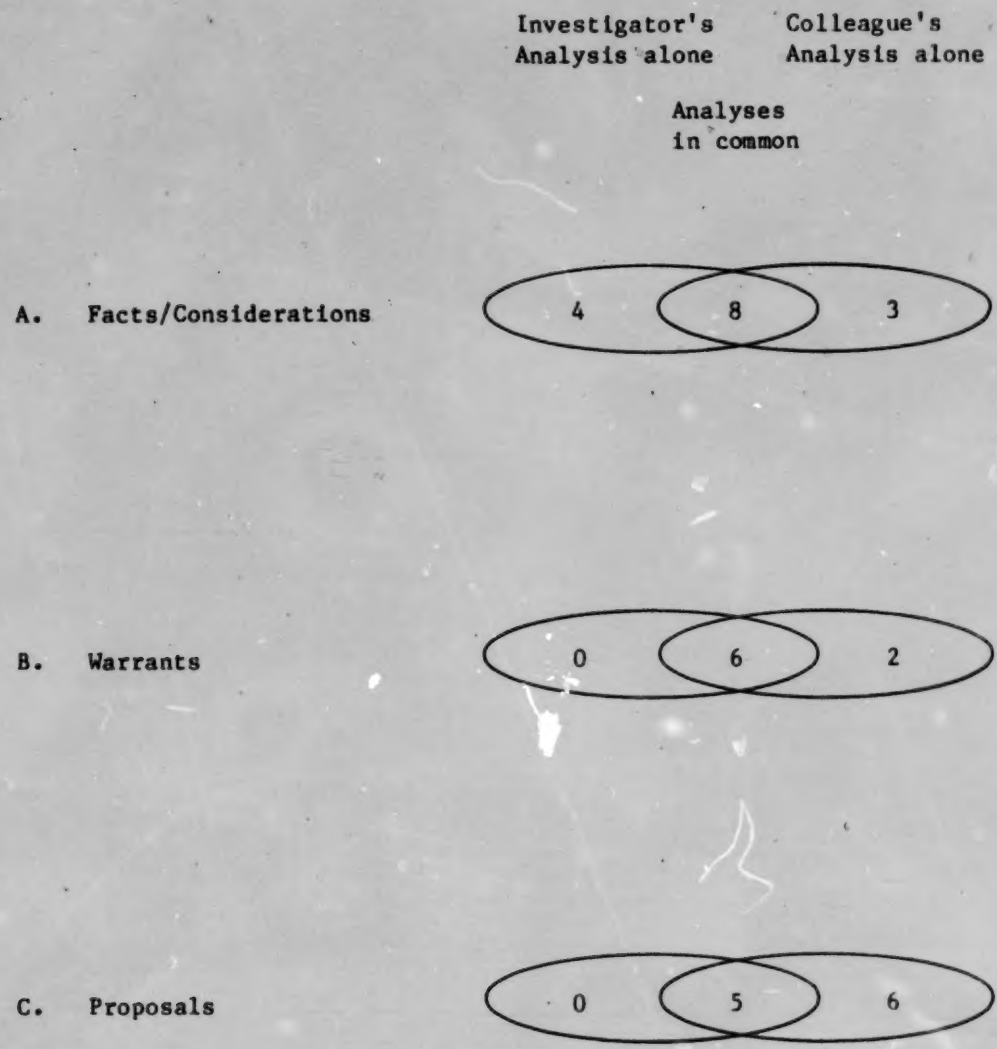


Figure 5. Correspondence Between Analyses

The category problems encountered in this portability test gave rise directly to much of the lack of correspondence described earlier. In the course of discussion, it was clear that the most frequent of these problems arose from the lack (in the original version of the scheme) of categories at the "level" of facts but corresponding to warrants and proposals. That is, the original assumption that argument patterns always developed through the initial presentation of a fact followed by its acceptance as a consideration gave rise to periodic difficulties. For example, on occasion proposals or statements of general, warrant-like, principles are made which do not belong to an argument pattern. Inasmuch as these had not been anticipated, they caused difficulty in analysis and sometimes a different analytical result. This problem is also related to the less than clear operational definition of a consideration and the consequently difficult determination of when a fact becomes a consideration, or whether indeed considerations must even be derived form facts at all. The detailed discussion of this point (which also arose in earlier tests) has led to a significant modification of the scheme which is described in the next chapter and which my colleague considered would make the analysis easier.

The second set of problems are of quite a different nature since they reflect less on the scheme itself and more on the type of training an analyst requires. My colleague in this analysis had attempted to analyse every statement made in the transcript, not merely those having status as "logical moves" in the deliberative process. This placed a greater demand on the analytical task than the scheme was able to support and rendered the task very arduous. In discussion, we

agreed that the analogy of the fixed focus microscope or hand lens was helpful in understanding her problem. If analysis was attempted at too great a level of detail or at too general a level, the scheme is less adequate in clarifying or resolving the logical components it was designed to identify. As the developer of the scheme, I had intuitively used it at the correct level of detail and had had relatively little trouble. My colleague, in her enthusiasm to be thorough, had attempted to analyse at a level of finer detail and the results had become confusing.

The third area of difficulty has already been discussed. It concerns the problems associated with the interpretation of deliberations which "wander" from issue to issue. Since it is intended that the scheme be used to identify and compare arguments about a given issue, it would seem that one must only focus on a single issue even if the sample of transcript may contain discussion of other matters also. However, having analysed the issue at hand, attention may also be required to focus on other related issues, depending upon the analyst's purpose. Both this problem and that raised as a second area of difficulty could be resolved, it would appear, by improving the training provided to an intending user of the scheme.

Overall, this third test has confirmed the evidence of the first two. The scheme requires some quite specific refinements (which are described in the next chapter). At the same time, it has been shown that the scheme is applicable to the task for which it was designed and that it is usable by an analyst who is neither its designer nor a party to the deliberations to be analysed, provided that

appropriate training is provided. Evidence has therefore been provided to permit both the refinement of the scheme and the evaluation of the thesis of this research.

Chapter 8

CONCLUSIONS

Two tasks remain before this study is complete. The analytical scheme has been the central focus throughout. Earlier parts of this dissertation have described its background (ch. 1-3), its development (ch. 4), its trial use (ch. 5-6), and its appraisal (ch. 7); in this chapter, its refinement in the light of this use and appraisal is reported. The second task concerns the objectives of the research; these can now be reviewed and conclusions drawn where these are warranted. From this review one can project avenues for further research and potential application. As was made clear at the outset, this study is regarded as an exploratory one. As many questions are raised, it appears, as are answered, and these new questions can form the basis for further work in this area. Each of these tasks is next attended to in turn.

The Analytical Scheme Revisited

The major conclusions of the appraisal of the analytical scheme described in chapter 7 are two: that the major categories of the scheme are adequate; but that additions are needed to permit the recognition of both warrants and proposals which are not contributed as parts of existing argument patterns nor linked to specific facts.

Figure 6 presents a modified version of the analytical scheme in which these changes are incorporated; slight changes in terminology

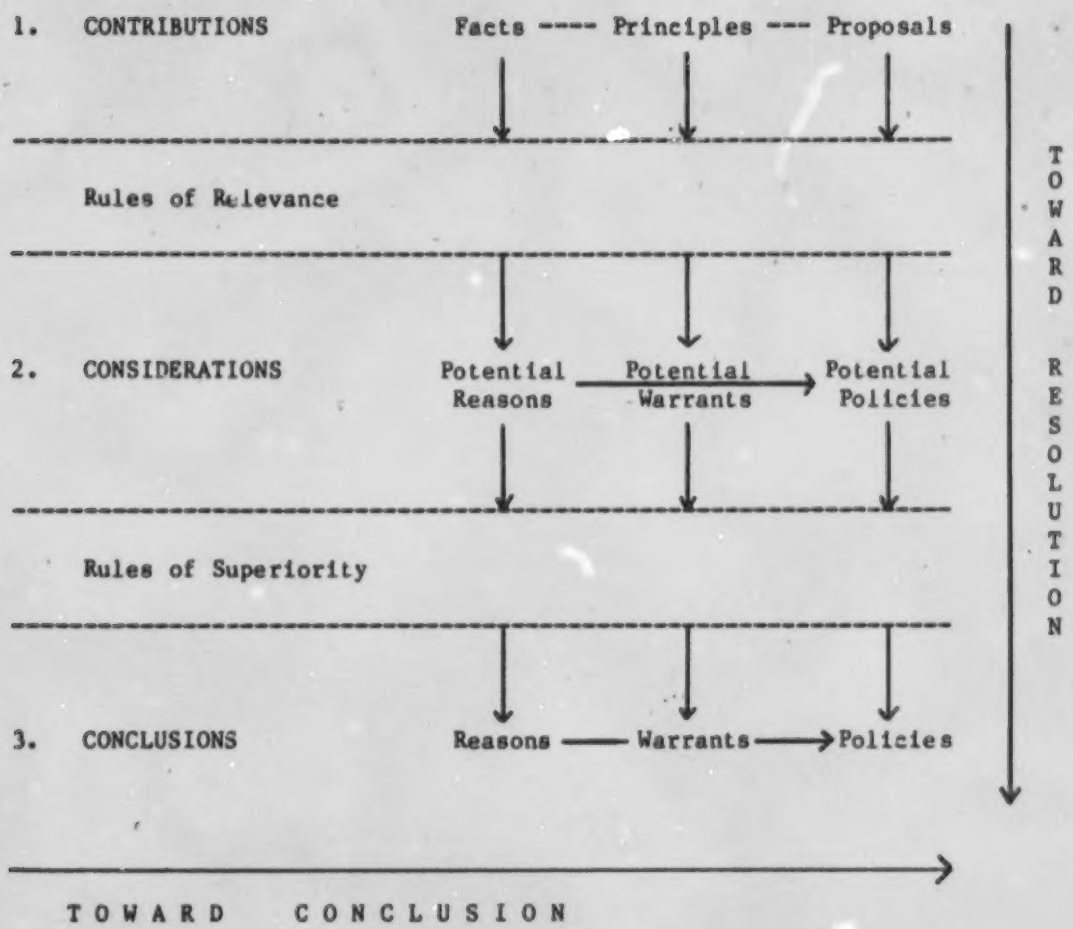


Figure 6. Modified Analytical Framework

are also made with a view to clarifying the nature and status of "considerations". The modified version retains Baier's two stages of deliberation but recognizes that at stage 1, a broader variety of statements are being assessed for their relevance than is envisioned by Baier's account. Statements relating to the particulars of the situation (Facts); statements expressing in general terms value positions, what is desirable (Principles); and statements expressing suggestions concerning what might be done in the particular situation (Proposals) can all be encountered at stage 1. At this stage they may or may not be linked to each other in a complete argument pattern. Sometimes two elements are linked to each other, such as a proposal with a fact or a general principle and a proposal. But there is no requirement that there be any such links evident at this stage.

At stage 2, however, the various facts, principles, and proposals can be assembled into patterns. If any of these are considered--i.e. if they have become considerations--it is because they are perceived as relevant. If they are perceived as relevant, it is likely that they can be linked through argument patterns. Considerations, then, are any of the elements from stage 1 that can be assembled into relevant argument patterns. Correspondingly, they are labelled differently to reflect their changed status: Facts become potential reasons; principles are renamed potential warrants; and proposals acquire the status of potential policies. <u>All</u> are, at this stage, considerations, this term being inappropriately reserved for facts alone.

Finally, following stage 2, when a decision is reached, each of the elements fulfills its potential and those that support a final policy become reasons based on warrants. In other respects the scheme remains as it was defined in chapter 4.

These specific modifications were discussed with the colleague whose application of the scheme was described in chapter 7. She expressed the opinion that the suggested changes would indeed reduce the difficulties encountered in the application of the framework in its original form. As was pointed out in the conclusion of chapter 7, the problems of its application were of three sorts (category problems, focussing problems, and interpretive problems) and the modifications described here can only have an impact on the first of these. Further trial application of the scheme, even in its modified form, would require the development of a manual for its use and/or a training program for potential users to be devised. These are major activities beyond the scope of the present study. However, the modifications presented here clearly have the potential for rendering the scheme more applicable to the task for which it was designed.

Review of the Research Objectives

The aim of this study has been to develop a fresh conceptualisation of the process of curriculum deliberation. Three criteria were outlined in chapter 1 by which the adequacy of such a conceptualisation can be assessed and it is therefore appropriate that, in conclusion, the product of the study should also be so appraised. An adequate theoretical formulation, it will be recalled, possesses empirical

correspondence to the field of practice, internal or theoretical coherence, and an implicit ideal from which normative standards can be derived. It is the claim of this thesis that the conceptual framework developed in this study meets each of these three criteria. In supporting this claim, I shall also take the opportunity of outlining the potential for further research and application that has developed in the course of the study.

Empirical Correspondence and the Problem of Validity

The earlier version of the analytical scheme has received three tests of its empirical correspondence or validity in the course of this study. In the light of these tests, it has been refined. At this stage therefore, the tests and particularly the portability test require repetition and additional tests can be readily devised. In addition, the scheme has only been tested with deliberations at school board level over science curricula at grades 7-10 in Ontario. While there is no reason to assume that its applicability is restricted in these ways, there is no evidence to the contrary either. Further application into other situations and by other persons will add significantly to the evidence concerning the portability of the scheme.

Overall, the empirical correspondence criterion for adequacy would appear to have been met within the restricted scope afforded by the present study. Additional research is clearly required in this area. And the conclusions of such additional research will be important not only as evidence concerning this criterion. A scheme

whose categories are of value in observing the phenomena of practice is a prerequisite to the achievement of the further goals of research implied by the other two criteria. For the analytical scheme to be a significant contribution to our collective understanding of curriculum deliberation, it must not only possess empirical validity but also internal coherence. Its conceptual elements must be systematically related in a coherent view of the curriculum field. And for the scheme to be even of potential use to the practitioner, its empirical validity must be supplemented by implicit ideals from which standards or norms for the critical evaluation of practice can be derived.

Internal Coherence and the Enhancement of Understanding

Here, the potential of this study for advancing our understanding of the enterprise of curriculum deliberation is reviewed. The scheme itself has been developed on the basis of freshly stated concepts of curriculum and of deliberation which have already been argued for at length in chapters 2 and 4. The coherence of the scheme, then, rests strictly on these arguments. However, at this stage it is useful to enlarge the notion of coherence somewhat. One may also ask, of a theoretical formulation: Does it have the potential to further our understanding of the field of knowledge? Does it suggest new and theoretically significant questions for research?* In respect of the scheme developed in this study, I believe that both of these questions can be answered positively. Two examples will serve to support this

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* Cf. Margenau's concepts of "logical fertility" and "extensibility" as "metaphysical requirements of constructs" (Margenau 1950, pp. 81 ff.).

claim. I have argued elsewhere in this dissertation (chapter 2), that much of the literature on curriculum making is either idealistically prescriptive and having little relationship to everyday practice or narrowly focussed on empirical validity but possessing no means for assessing or evaluating practice. The field stands in contrast therefore with the professional fields of medicine and law where the accumulated practical wisdom of the profession is expressed in cases carefully documented and readily analysable. Curriculum policymaking has had no language which can enable such case histories to be accumulated and thus there is little we can learn from the developing quantity of "cases" that are now being recorded each in its own terms. The use of a common set of terms, general enough to permit many different cases to be described but specific enough that they can in fact be seen to be applicable, would enable a more systematic comparison of cases to be made. The profession could then learn collectively from the resulting accumulation of experience (cf. Wise 1979, p. 25).

The scheme that has been developed in this research would appear to have that potential. In the study, only two instances of deliberation were analysed in full but even this limited analysis permitted interesting comparative discussion to be made, for example concerning the types of warrants employed in each case, and the backings for these warrants. And this point leads to the second example of theoretical potential possessed by the product of this study.

In looking for an answer to the question, "What is the field of curriculum like?", the concept of the "syntax" (of a discipline)

suggests a direction in which to look. In clarifying the distinction between the "syntactical" and "substantive" structure of the disciplines, Schwab (1964) identified syntactical structure as being concerned with the kinds of evidence used by a discipline (p. 28). As he goes on to show, it is in matters of this sort that science, for example, differs from other disciplines, yet maintains itself constant across all its branches. The question "what kinds of evidence are used in curriculum argument?" is therefore a question whose answer is likely to contribute to our understanding of the syntax of the curriculum field. And a comparison of this answer with answers to the same question asked of other practical fields can help in elucidating what relationship curriculum as a field bears to these others. In such a way, an epistemological map of the territory can be constructed.

Toulmin (1958) makes a similar case to Schwab, though in more specific terms, when he argues that the "criteria" required for drawing certain types of conclusion are "field-dependent" (p. 36). He points out that the "canons for the criticism and assessment of arguments ... are field-dependent" (p. 38). This being so, the question of the epistemological location of any particular field becomes a matter for empirical investigation. The "logic" of the field, once clearly formulated, can enable the mapping to take place.

The use of Toulmin's argument pattern as a central part of the analytic framework allows the investigation of the nature of warrants used in curriculum argument and also of the backing for these warrants. As Toulmin argues in detail, it is at the level of warrant and backing that fields of discourse and inquiry differ from one

another. The fact therefore that the scheme allows explicit study of these elements as they are used in curriculum argument means that the scheme can potentially contribute an empirical element to the continuing debate concerning the nature of the curriculum field.

Implicit Ideals and the Improvement of Practice

The phrases "learning from one's mistakes" and "refined through experience" capture well the common experience that people have concerning the ways in which their conduct of many a practical art or skill is learned and improved. Whether one is engaged in skating or writing, car driving or teaching, it is generally acknowledged that there is a limit to what can be learned in advance or "from the book" about these activities. The recognition given to apprenticeships and other forms of on-the-job training attests to the importance of the trial-error-retrial cycle in the improvement of most skilled trades and professions.

Essential to this process is the existence of means by which instances of practice may be critically evaluated, either by the practitioner or by an observer. For evaluation to be based on more than personal intuition, there must be standards or criteria by which performance can be assessed and from which suggestions for improvement can be derived.

The trial analysis of the issues described in chapter 6 provides a demonstration that the analytical framework can permit the identification of key logical features of deliberation, and to do so by means of objective criterion judgment rather than on the basis of

personal opinion. This is of key importance in the use of such of an analysis in the service of improving practice. Furthermore, since the features identified are logical features--that is, they bear a logical relationship with one another--criteria exist whereby the features identified may be assessed. For example, the warrants that are used in a particular instance may be identified and questions raised concerning their backing. Also, in applying rules of relevance to include some contributions and to exclude others, intuitive judgments are made by deliberators. The use of this analytical framework can enable these implicit judgments to be made explicit and thus open to evaluative discussion. What is relevant to a curriculum argument is at least in part a matter of fact rather than opinion and making explicit such matters can assist in determining whether correct judgments have been made in a particular case.

A ready extrapolation from the concern of the individual practitioner for the improvement of his own specific performance leads to the concern that professionals in the curriculum field have, as a group, for its general improvement though the documentation of its past experience, its triumphs and failures. Of course, the primary and direct means of improving practice will likely always be by means of work at the level of the individual practitioner in his specific and unique situation. But that does not preclude the possibility that the accumulated "practical wisdom" of experienced practitioners can also be of value, particularly in the training of future practitioners. It is, after all, on the basis of this principle that the legal and medical professions make such extensive use of case histories in the training

of their practitioners (see, for example, Woodard (1972) for a critical assessment of this aspect of legal training.)

As Wise (1979) suggests, it is rare that practitioners involved in deliberation reflect actively on the process itself. They tend to be preoccupied with the content of deliberation, with "what the curriculum should contain." I would argue that one of the reasons for the rarity of this "meta-level" thinking and discussion is the lack of a logic or language with which to conceptualize the deliberative process and that the products of this research offer a contribution to such a language. Again, further research would be required to investigate the potential of this material for forming the substance of a useful training program for deliberators.

The task of this study is thus complete. The analytical scheme that has been developed has been assessed on the basis of its correspondence to practice, its internal coherence and its implicit ideals. And, in conclusion, I have argued that the research holds promise both for increasing our understanding of the field of curriculum and for contributing to the improvement of its practice.

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APPENDIX A

ANALYSIS OF ISSUE A

(Size and Control of Core Curriculum)

In the following transcription, the following abbreviations are used to refer to participants:

A:	Coordinator of Science for the Board and Chairman of the meeting
B, C, F:	Science teachers at grades 7 - 8 level
D, E, G:	Science teachers at grades 9 - 10 level
X, Y:	Researchers, Participant-Observers at meeting

Transcription

This issue was one of the major areas provided in the Ministry Guideline for board-level decision making and it occupied about half of one of the meetings of the coordinating committee. The Guideline stipulated a core of 50% of the curriculum for grades 7 and 8 (and also for grades 9 and 10). Further, the School Board had directed that there be a minimum of 50% common core for each of the grades 7, 8, 9, 10. This allowed both for increasing the size of the core from the basic 50% and/or for assigning control of some part of that curriculum to each family of schools or to each school. The teachers had been asked in the survey for their opinion as to which level (Board, Family, or School) should control how much of the curriculum for each grade. The results of this survey formed the basis of this meeting of the coordinating committee and discussion of the issue took place as follows.

A: I wonder if we could go back to the first question and deal with some of these things where perhaps there isn't the area which really needs consideration. I would like to try and get some of these items out of the way. For example, the extent...how much is core as far as the board is concerned? The first question. And by whom is it controlled? My interpretation of what is shown there is that consistently people are saying that the board should control more than 50%. And something ... right across from 7 to 10. You sure have got the bulkier... even though the mode does sit in the 50% range, that may have something to do with the way the questionnaire was set up, but the majority of people are indicating that they want to see something more than half. Then the question of control or making decisions at the family of schools level, and, as you can see, in every one of the cases, all the way across, it was bimodal. Not surprising. If you averaged it, it,

Analysis

The first policy question or issue is laid out.

F1 (from survey data -- roughly 35% of respondents indicated that they wanted the Board to control 50%, 20% indicated 60%, 20% for 80%, and insignificant numbers of respondents suggested 90% or 100%.)

The second and related policy question.

F2 (also from survey data -- here, "bimodal" meant that across all grade levels, roughly 40% stated 0% control should be exercised at Family of Schools level, 10% entered 10%, and 25% suggested 20%, thus producing two "peaks" in the graphed results.)

in effect, is saying that maybe one unit per course that should be worked out at a family of schools level. Very definite in the school column there... My recommendation to my boss, before I came to you with this paper... does anyone need any additional copies of this, I do have some spares... was as you see them. Even though the family one, you could work out an average, and argue some case for mandating some kind of... delegating some work to be done at the family of schools level. I don't think it would wash, and this is why I haven't recommended it. How do you people feel about it? You can see that the mode in every case is zero. They don't want it, and yet there is a significant number that are saying... in fact, probably in some cases more, except in grade 9 there, that do want some. But then, undoubtedly, some of those are going to be people who didn't understand the question.

C: There's another thing too, that we have to remember. The majority of the responses are from the 9/10 level.

B: I don't really think that 12% in the family of schools area suggests that we should set up a thing for a family-wide basis at all. It means that 7 out of 8 teachers don't want it.

C: And also too, it looks as though, for 9 and 10, it looks as though the high school people don't want the public school people coming interfering up there.

A: I don't know...

C: What's it? Just about 60% both ways for 9 and 10 where you don't want anything done at the family of schools...

A: You've got to bear in mind, C, that a fair number of the ones that show up on that zero column which is a mode in every case are going to be people who show up in the 50% column in the

F3 (also from survey data -- a sharp "peak" in the graph indicated that roughly 40% of respondents wanted 20% to be controlled at school level.)

p1: "At both Grades 7 and 8, the core consist of 4 of the total of 6 units which will comprise each course (67%)"

p2: "At both Grades 9 and 10, the core consist of 6 of the total of 8 units which will comprise each course (75%).

p3: "The balance of each course (7-10) be optional and up to each school to decide (although consultation will be recommended)."

All of these proposals use the general warrant W1: that teacher opinion should be the major factor in determining extent and locus of control. F1, F2, F3 are clearly considerations.

F4 which does not appear to become a consideration.

Endorsement of proposals, based on F2.

An inference based on

F5 (from survey data)

is shown to go beyond the data and doesn't become a consideration.

schools. They are the ones who want a 50/50 split, Board and... Not having seen the responses, that's not something that shows up on my interpretation of the results here.

D: That grade 9/10 thing, the school is the family isn't it?

A: Yes.

D: You can't really compare that to the upper part at all.

D is suggesting that the question of family of schools' control may not mean the same thing to a grade 9/10 teacher as it does to a grade 7/8 teacher.

A: How do you feel about that idea though? That they are saying "No" and I think that we'd be ill-advised to try and dictate otherwise.

Again, the warrant W1 is evident.

C: How about a suggestion in there that optional 1 unit for 7 and 8 be recommended at the family of schools?

A compromise proposal, p4, presumably based on the same considerations, is not argued for.

B: I don't see the point in it.

C: That could be decided in the family on their own anyway.

F: Optional.

E: Right.

D: We were going to make, when we... surely when the 7 and 8 core are set up, and then the 9 and 10, there's going to be continuity there and that's what we're after. (A: Yeah) So we are going to ensure that the units in 9 and 10 are a follow-up to the units that are in 7 and 8.

This statement functions later as a warrant (W3) that continuity of units for through grades 7-10 is desirable. Here it is raised as a point of clarification not leading to any specific proposal.

X: And that would be done in the family?

D: That could be done by the committee, isn't it? The Board-wide committee.

E: Have we decided that that is what we are going to do?

A: This is my recommendation. That we not delegate responsibility... on the pages of recommendations that I gave

you... that... recommendation no. 1 on the extent of control, that the board core should consist of 4 of the 6 units.

p1 repeated.

E: For 7 and for 8?

A: Yeah. And at both Grades 9 and 10, 6 of the 8. This would be the county-wide core, reflecting that pattern there. And no. 3, that the balance of 7 though 10 be optional and up to each school to decide, although consultation, and I meant there within a family of schools, will be recommended. But in talking it over with my boss, I couldn't recommend on the basis of the apparent feeling out there that we mandate it in the core, make it obligatory that they must get together within a feeder system and set these things up. I don't think it would be...

p2 repeated.

p3 repeated and its <u>intent</u> clarified.

Again, the same warrant (W1) is used to justify the exclusion of any explicit reference to family of schools.

G: Are all the grades 7s and 8s on rotary?

A: Virtually.

G: The reason I ask that question is that I think your first recommendation is good and consistent with the data. I have a question about the recommendation about the grade 9 and 10 physical science and biological science. And I think there are several reasons for the question. The first is that you say right here that there will be a problem with the interface if we decide to make grade 9 physical and grade 10 biological. Looking at what the public schools' response is, I think that there would be the problem you mentioned earlier with interface. The other thing is that I think the reason the secondary panel got back to you and said that the grade 9 should be physical science and grade 10 biological science is that that's the way they've done it. Most of the grade 9s are physical science. In other words, they are just continuing on the way they perceive it. I think all of

Endorsement of p1.

This refers to a later recommendation in the discussion. The points raised here do not make the connection with the issue under discussion explicit.

us could give numerous resons why it should be the reverse. I wouldn't want to get into arguments like that. But I want you to think of the following. Is there any reasons why all the grade 7s throughout the county has to be biological science and all the grade 8s have to be physical? Is it necessary that we have to differentiate between grade 7 and grade 8? The same thing applies to the high schools. Do we necessarily have to differentiate between grade 9 and grade 10 science?

A: Legitimate questions but I think... Could we stick with simply the question of how many units are going to be mandated by the ,... on a county-wide basis. In other words, let's try and get that out of our hair first.

These "facts" are not considerations at this point.

C: Then the composition...

E: One question then for you, A. The 9 and 10, why have you picked 6 out of 8 for 75%. Just looking at the data, it looks like 65 or 66% is the median. That would be more like 5 out of 8 courses, at the secondary, if I read the data right. In both grade 9 and 10, county-wide. Median 65%, grade 9 and 64% grade 10.

p2 questioned in that F1, 2, and 3 have been inaccurately "applied" in developing the proposal. The criticism appears to be a technical one, until the response to it introduces a new Consideration.

A: You mean, why not move from the mean as shown there...

E: No. Why not, rather... You haven't gone with the median in 9 and 10.

A: They are means, and why not move to the 5 which is closer to the mean in both cases than 6? For two reasons. It's going to be one or the other. They are both the numbers on either side of the mean (E: Right.) It's my... It's simply my opinion that I think that it would be better for the system if we had 6 out of 8. It's as simple as that. It's a recommendation that's all. Plus there were a few people that chose to ignore the restrictions of the increments of 10 and wrote in the 75s. I saw that

F6 uses the warrant W2: that the coordinator's judgement of the needs of the system should be a consideration in determining the extent and locus of control.

often enough. I guess that they must have impressed me. But that's all. It's just simply my own feeling.

E: Fair enough.

F6 is accepted as C6.

D: The only thing that bothers me, A, is that, without having any family decided-upon units, we're losing part of the main advantage of the new guideline where we have more cooperation between the two panels and we're simply then going to say that we are going to follow along with what's been prescribed. Which gives us more continuity but I would still like to sit down with the feeder schools and decide: Well OK, maybe not 1 unit; which am I doing and which are you? Maybe we can discuss...

F7 which, using warrant W3 established by D earlier, is used to oppose p3.

p5 is implied here: that some form of family of schools planning be required.

C: Without it coming to your two optional ones.

D: Yeah. That's what I was saying.

A: D, I would have loved for a nice clear base from the system, to back up mandating in the curriculum and getting it all the way through the people that make it official, that this is the case, because then there would be some chance of it actually happening. But I think that this is reinforcing, the data that came back is reinforcing very loud and clear what actually is happening out there and what is likely to happen. It would be like trying to legislate love. No matter how ideal, it's just not going to come off. I think we are wasting our time. I think that perhaps we should employ some kind of strategy to try and get at it. I don't think we can legislate it.

F7 is accepted as C7 but p3 is still supported on the basis of F1, 2, 5 and 3.

A new twist here: F8 and F9 (itself, a prediction) are used to support p3 with the implied warrants that "it is not worth developing a policy that is either substantially different from present practice (W4) or unlikely to be implemented (W5)."

B. It depends what you superintendent is like.

This point confirms F8 and F9 as considerations C8 and C9.

A: Yeah. Right on. And your principal and so on. It depends on the individual department head and the teachers in the schools. I would love

F10 here would appear to support

to have seen this data come back. I very much personally favour this kind of thing, but when the reality of the situation is that it isn't happening, doesn't happen, when it does happen occasionally, it peters out right after no time at all, a year or so. It would be even worse than a seat-belt law. You know, it's good for us, but it's just not going to happen, and I don't think it would be realistic. It would raise a lot of hackles, I think.

B: Better...

A: That's my opinion that's all. It bothers me that it came out that way. I am very disappointed.

Y: On the other hand, A, if you look at the Family data again, the total number of responses who argued for some family discussion (A: Oh yes, I know.) was more than the total that put zero, in most instances. Which suggests that at least 50% of the people who responded to this questionnaire who are out there are at least themselves committed to the idea that ... if not committed to it, prepared to face the idea that some negotiations on a family basis be entered into. It seems to me that though you may be right in the sense that this is not the place to require them to come to decisions, that's enough of a platform, it would seem to me, if you wanted to push for family meetings, you could do so on the basis of that. Just because the modes were for zero. I don't think you have just got to... (A: Oh, no.)

X: The mean doesn't mean anything either. The mode and the mean are meaningless here.

Y: But the total number of people arguing for some kind of family of schools decision is greater than the total number of people arguing against that, and I think that that's another way of looking at the same data, which...

p5 using the warrant W2 that was associated with F6. However, again a rule of superiority appears to be operating.

C9 again.

F11, the strongest point yet in favour of p3. The warrant here is the same as with F1, 2 and 3 (W1).

F10 reiterated.

The interpretation given to F2 is questioned here. The suggested interpretation implies a support for a compromise, while accepting the original warrant (W1).

A: Well, that would encourage me to go after encouraging this and promoting it, by some other means than legislative policy document. This is my feeling.

A hint of possible compromise.

D: Do you think that some people when they answered that just answered automatically, and just said 50% controlled by the board, that leaves 50%, or did they mix that up?

The alternative interpretations of F2 are raised again.

A: Who knows?

D: And so they said: Well we're going to have 50% automatically dictated by the Ministry, so we'll just divide the others up. Isn't that just the way you were supposed to do this? When I looked at this I though: Hey, 20%, that's pretty good, that's a lot. (Some conversation on this, several speaking at once.)

A: OK.

C: There's another one just to put in there, to look back, what would be... OK. What's the purpose of getting the family of schools together? My feeling of the purpose is to get the continuation from 7 to 8 to... in the program. Now you are automatically going to get that since there's going to be 10 of the units are going to be prescribed, 20 actually.

Accepting the warrant (W3) concerning "continuity" this speaker seems to support p1, 2, and 3 on the grounds of F12, tht the core units provide for adequate continuity between grades.

D: The kind of thing that can happen at the family with one unit per grade, for instance, would be that you could take advantage of local situations a lot better as a way of having a purpose for getting the family together.

F13 is used to support p5, the warrant being that it is desirable to take advantage of local situations in planning curricula (W6).

C: I see the point but you know, if you are saying you want to have the continuation of education, you are already going to have that if the board states what you are going to be doing.

F13 becomes C13

but F12 is reiterated.

D: Yeah, but say I want to do machines. It would be nice if I could, if I knew whether the feeder school was doing

F12 accepted as C12.
F14, supporting p5, rests on the warrant that it is desirable for secondary

something with machines in 7 or 8. That's the type of thing that I'm after.

schools to know what is being taught in grades 7 and 8 (W7).

C: Is there anything stopping you if we leave it like this?

The relevance of F14 questioned, while the warrant W7 appears to be accepted.

D: No, but all I'm saying is that we're missing a good chance not only for continuity but just to know who the people are, if you want to come and get equipment from me, this type of thing. Really all it entails is probably two meetings minimum, one where we would decide what units, and maybe a follow-up after the end of that year to see how we were going. That's not asking a great deal.

In further support of p5, F15 asserts the potential for personal contacts through family of schools planning. The warrant here is that personal contact among teachers at different schools leading to professional interchange is desirable (W8).

A: It's obvious that those kinds of things, getting together for those kinds of reasons are probably very good. There's just no question about it, and certainly the curriculum should do everything it can to encourage it. It was the opinion of... It was my opinion, based on what I saw, and also, without prompting, it was the opinion of a number of the superintendents and principals that I talked to, that you couldn't legislate something like that. I'm not trying to thrust this down your throat. If you want to try and take this to the next group that we're going to have to call into plenary session, one representative or two representatives of each family of schools to look at some of these results and your recommendation ... if you want to try and sell that idea, of legislating that they must get together. Now, bear in mind what for: to construct a common unit in 9, in 7 and in 8, 9 and in 10, that they sit down in committee and decide the nature of... On the other hand, the curriculum document could be constructed in such a way, the county core, and I'll show you a way in a few minutes where you can do that, because if we decide plug in, I'm getting ahead of myself but, you can be plugging in the ministry units and taking a few liberties with them, the

F15 accepted as C15, and the warrant is also endorsed.

p3 reiterated, again on the basis of F8 and F9, but this time the approval of others in the system is being claimed.

A procedural way out for the p3/p5 issue.

p5 is here being given specific substance and at this point resembles p4.

A proposal for achieving family of schools planning without actually mandating it as policy. The proposal is not argued for here but reappears as p6 somewhat later.

Ministry mandatory units, and then virtually going with locally designed units to make up the balance of the country core, make it almost absolutely necessary that they consult. Otherwise their programs are full of holes. Now, I'm not recommending that, but... I was surprised to hear some of our senior administration say: You'll never pull it off. I think it was realism. It surprised me, but they all said: Get at it some other way, but you can't use a curriculum document to... What do you think X? Do you think you can legislate that kind of behavior... with a curriculum document? ... What does the research say about it? What does your experience...

Back to C8 and C9 in support of p3.

Looking to an outside consultant for advice regarding C8 and C9.

X: There isn't any research on a question like that, at this point. I think that because of the way you have the process set up for the county with people from both the secondary and the elementary all involved, you've got, in plenary group, you've got represenatives from every school that you can take the question to. One of the consequences of going ahead without any consideration of family planning... pardon the pun ... is: Is it possible that for a given secondary school, one feeder school, going to recommendation 1 for a moment, one feeder school might put in a couple of options that are very different from the program of another feeder school, say in grade 8? So that the same kids coming into grade 9 course in a given secondary school, would have had fully a third of the program of grade 8 and equally a third of the program of grade 7 that would be at odds. So that the planning in grade 9 would become more difficult, particularly with the lack of communications that D was referring to. In other words, it is not only between the feeder elementary schools and the secondary school that there would'nt be any communication. There wouldn't necessarily be any communication between the feeder schools themselves. That would be one of the consequences

The procedural route to resolution appears to be implied here.

A lengthy point establishing F16 as a possible consideration. However no warrant is implied and no proposal specifically supported.

of going with the kind of lack of requirement for family of schools planning. I don't know whether that ... maybe it's something that you would want to kick around a little bit.

A: OK, take it one step further, X. Because you have touched on the weak point in this argument that I am presenting here. But consider this: Your argument is very valid, particularly in some of the older areas of the region. We have precisely that kind of situation, where there are more than one feeder school leading into a secondary school. It's not typical of the newer areas where they built senior publics, senior elementary schools. But we've got enough of it, it is a real problem, but on top of that, just like a timetable, we have some cross links which will necessitate not only families getting together but a number of families of schools getting together. Right down around here is a good example. Say school P feeds into Secondary schools Q and R as well. That means the whole unit gets together, and, if I'm not mistaken, there is some crossing from one multiple unit consisting of two families, to one of the other multiple units. You know, where do you stop?

A takes F16 as C16 and perceives it as support for p5, the warrant (W9) being that communication among schools is desirable. The point is developed and illustrated.

This goes on to suggest F17, that family of schools planning is impractical. This would support p3 on the grounds that policies should be feasible (W10).

B: I am sure that if you started that, it would become almost county-wide.

F17 becomes C17 and the feasibility issue is discussed a bit more.

A: Well, it isn't. It's characteristic of the older areas.

C: Ours is 60/40 to two schools.

A: Yeah, well there it is.

B. We're about 95/5.

A: You see, 60/40 is... significant.

D: You would have to agree with 2 high schools.

E: The unfortunate part is that I'm with one high school and the other high

school doesn't have anything to do with us, and we don't have anything to do with them.

X: You see, it could really get messy, if the 7 and 8 went with a physical science/biological science split, no matter which one comes first, and the 9 and 10 went with that same kind of split. There would be an expectation of grade 9 kids that they had had a reasonable amount of physical science and maybe a reasonable amount could include one more unit beyond the county core. So that if there isn't any family of schools discussion about that, and negotiation about it, what you could have is a situation where kids are coming from one elementary school much more prepared in the physical sciences than from the other one say. A situation of this kind can develop.

C16 is further exemplified as a consideration.

A: OK. Well, my recommendation to solve this problem is that we, when we proceed, whether it be... I don't think the 4 of 6 at the 7/8 level is something that is negotiable. It's clear. Whether at the secondary level, whether it's 5 or 6 is a debatable point. Quite frankly, I'd like to argue in favour of 6, but put that aside for a moment, we have got this problem that X has put his finger on, and this is compounded by these cross-links, and my recommendation that wasn't contained in this, at the time I was trying to get the raw data out to you as fast as possible, but, working with it since then, is that we make very strong recommendation as to what the optional units should be. In fact, that we develop them to such an extent that it's going to be very difficult for the teachers to argue against them. Aside from pointing out, and doing a little bit of arm-twisting, but that the optional portion of the program be fleshed out to such an extent that, and specified in such a way that the easy thing, the path of least resistence is to fall right into it, and I think that

p1 reaffirmed.

p2 with some possible variation.

p6 is spelled out in response to the various concerns with p3 and as an alternative to p5. p6 — that the selection of "optional" units be recommended centrally — is based on the prediction (C18) that teachers will accept the easiest option open to them. p6 would be justified in terms of the considerations outlined earlier in opposition to p3. The warrant in this case is that it is desirable to steer the teachers' choices by making some options easy to implement (W11).

that will solve an awful lot of our problems without ruffling feathers that way. Because this was the information that I was getting from the senior administration and principals: that as a policy it won't wash. You can't force that kind of thing. You've got to go at it from some other way.

Presumably p5 is here being referred to again.

E: So what you're saying is: You don't have to do it but we'd like it if you did do it.

Clarification of p6.

A: Yes, you can say that sort of thing, and you can also, by the development of your optional material, rather than just leaving it wide open to the Ministry document, actually develop optional material, suggested optional material of such a nature that it fits with the county core so nicely that people will just fall right into it, the vast majority because it is the path of least resistence.

G: Are you sure? I'm thinking of the secondary school people... they would get their 6 and I know what 2 optional units I'd like to see there. Are you going to suggest to me...

C18 queried with respect to secondary teachers.

D: I think he's thinking more of the primary...

C: Well I think this could go... I know myself, if I don't like those 2, I'll make my own 2 up. But those people who don't have the experience would probably fall into what was laid out.

The issue is still unresolved.

For a few minutes, discussion moved on to other matters such as the particular textbook being selected by several schools for use in grades 9 and 10. A little later in the meeting, however, the control issue returned.

X: There were just two matters that maybe are a footnote to the family of schools question, because, frankly, I think that the data are equivocal. I think you could make the policy either way you wanted to, and you could still

The usefulness of C1, C2, C3 is queried.

be consistent with the data. I think the question that I would raise is: Is there any curriculum policy in the county that indicates that it is desirable for families of schools to consider curriculum together.

A further consideration (C19) would exist if there was a superordinate policy in this area.

A: Yes.

There is.

X: Well, if that is the policy, then what is it that your superintendents and others think they can't legislate? It's already legislated.

A challenge to the conventional wisdom represented by C8 and C9.

A: You are using the word "desirable". That's the operative word.

in C19.

X: So there is no policy that says it must happen. So when people don't do it they simply say it's not desirable here or something, then or... Is it a lively topic of conversation at all around the region?

Clarification of meaning of C19.

A: No, no.

X: The other question, I guess, as a matter of fact, is: as far as I know, there is nothing in the Ministry document that planning shall be in families of schools, in the policy section.

F20.

A: No, it simply points out that...

X: It's an option (A: Right.)

The Ministry document does not add an additional consideration therefore.

A: It encourages it, the same way as our policy does.

X: I guess my last question would be: are there any other desirable features to family interaction about the science curriculum other than the planning of units for satisfying of policy requirements of the board? That is, it may be easier to have topics for secondary set by the secondary school, and for the elementary set by the elementary school and no interaction, the committee could go either way, in terms of the data, but I was wondering if there were any other reasons that

Another attempt to flush out possible considerations.

you'd be prepared if there were any values to be gotten as a result of planning, D started talking about a couple: just sort of familiarity with what equipment is available or there may be other kinds of concerns that ... where some positive interaction could come out of families of schools planning and those would go down the drain if one didn't try to encourage it in some way.

A: I don't think you'll get any argument with anyone, anywhere, well, I can think of one or two mavericks, but on that point.

E: A, we don't have necessarily to decide this, if we decide on how much is going to be core. I think the suggestion was made that we go back to the larger committee and ask them, where each one has a representative, about the family question. I'd hate to see it die here.

A procedural suggestion for resolution of the issue.

Y: There's also a compromise, it would seem that, although it could be left, the responsibility for determining the curriculum is at the school level, that that doesn't shut the door to families discussion. (A: Oh, no.) As you said earlier, having families of schools' decisions is only one way of ensuring families of schools' discussions. May be this is not the place to make it... You could, for example, have a situation whereby every school had to draft its own options and while they were still in draft form, before they were finally decided upon, there had to be some sort of families of schools' interchange of paper, so that at least everybody in the family of schools knew what everyone else in the family was thinking about. Before every school made its final decisions, so that anybody at that stage, could at least scream if there were some grounds for doing so. It would be a sort of halfway step, if you said: Before you make up your mind, you have to trade pieces of paper. That doesn't say that the

A complex compromise proposal, p7, again based on the considerations raised to this point.

p7 is based on the principle (F21) that while members of families of schools have <u>an</u> interest in each other's curricula, they don't have an <u>overriding</u> interest. The warrant involved here (W12) is that it is important to give stakeholders a voice while not allowing them to override others' prerogatives.

the family can say which units, but it does say that before the schools finally decide, let them at least know that everyone else is happy with their decision, or their draft decision. Something like that might be worked out, which brings a family together, if not physically, then at least in some sort of a way, at the same time does not lock up units as having to be determined at that level.

A: What Y is suggesting has a lot of merit. These are some of the other kind of strategies that I think we are, a little bit later on, that I think we want to consider. To legislate that every family of schools must get together and decide upon and design a family core from 7 through 10 was the thing that I was told was unrealistic. It just wouldn't come off. You should use some other kinds of strategies, and Y has touched on some of them here, but how do you feel about going to this larger group? We're probably going to be able to pull them together once, by the looks of it. There's not many weeks left in the school year. Would you rather go to them with a recommendation that we could speak to as a group, even with a minority report if that were the case, or would you rather go to them with: Hey guys, we don't know what to do. What do you think?

F21 is accepted as C21.

p7 accepted as possible compromise between p3 and p5.

Process discussion.

C: I'd prefer to go with a recommendation. You'll get more valid criticism of it. Because if they don't care, they'll go along with the recommendation.

A: I'd certainly prefer going with a recommendation. At least you've got something to talk about then. How do you feel about specifically the kind of thing that, perhaps not precisely the detail, that Y suggests. This would be brand new for this county. Making this sort of thing policy. One of the problems when you try to make something policy, which it is in a core

curriculum is whether... just how effectively that policy is implemented. You've got to look at who is implementing it. Well, you've got 11 different "boards of education" that are operating here. Populated by people who have responsibility for implementation called principals, who in the secondary schools delegate it to the three of you as heads, and so on. Policy decisions, in the kind of structure we have here, you've got to be kind of careful. But something a little more palatable such as the kind of mechanisms that Y has suggested here, making it policy that they must share, I think there is a better chance that some kind of compromise like that would fly. I'd much rather see this group take something like that to that next level for their approval.

C: So what you're saying is that you recommend that the schools or the families of schools get together and must share what they're going to be doing.

A: Yeah. Make that policy.

C: Make that policy. Because my feeling was that if you made it mandatory, that the schools get together, there could be an underlying feeling that really the high schools are dictating to the public schools what they are going to do, or the public schools may be dictating to the high schools what they are going to do. And there could be that undercurrent. And if you've got that undercurrent there ...

F: Yes, who's going to make the decision, or which side is going to have more power as to which core topic is the one to go with, there's going to be a lot of friction.

D: Are we discussing core topics here?

F: No, no. Optional, I meant.

Clarification of p7. What follows is a sharing of predictions concerning the consequence of implementing p7.

The more these appear to be favourable, the stronger the support for p7. The remainder of the meeting was spent in projecting consequences in this way, to see if any were undesirable. None appeared to be so. These projected consequences however are considerations also.

C: I think that you've got to make it very clear to them that they have their optionality at their level. What we're trying to do is to ensure how we're going to deal with that optionality between the two levels. I don't think that either level should dictate to...

Y: No. My idea was that where an elementary school might want, might be inclined to go for one optional unit, but if its particular secondary school raises some serious objections, to that unit, then that school might be happy to reconsider. I'm not saying that the secondary school could overrule the decision ...

A: It could be curriculum policy that this kind of process must take place.

C: But going back to your idea, maybe I set up a unit because I am close to ... and I want to use that as much as possible. If the secondary school said: I don't particularly want you doing that,...

Y: That's the whole point. The secondary school shouldn't be saying that sort of thing. The secondary school might raise why it is going to be difficult for them if you <u>do</u> do that unit, but the judgement is still yours to make.

C: I could say: That's your problem, you solve it.

Y: You could indeed, but...

A: One of the outcomes of the consultative process that could be legislated could be the agreement to disagree.

F: So what you are saying is that the... in 7 and 8, they would have the final decision on what optional topic should go in and the 9 and 10 should have the...

A: At a particular school.

F22/C22: p7 would preserve the autonomy of each level of school to make decisions concerning their own program. The warrant is W13: schools should have autonomy over their programs.

F23/C23: p7 would enable disagreements to be tolerated if not resolved. Warrant W14 is that disagreements should be tolerated if not resolved.

F: It would be input... from both sides.

G: Hopefully if they do sit down they could come to an agreement.

Y: In the ideal situation they might agree, but they might not.

F: Just declare what you want to do and... work it from there.

Y: At least the 9 and 10 people would know what was coming in 7 and 8, which, from what I gather, would be an improvement on some of the situations...

F: Wait a minute, A. You say: At a particular school. We are talking about a family now. If you've got say three elementary schools in a family, I would assume that they would have to agree on the optional...

Question of how p7 might be implemented.

A: No. I think the policy would have to read that, let's take a hypothetical situation where you've got 3 schools, say 2 of them are K - 8 schools, one's a senior public, 7 and 8, and they all feed students to a particular secondary school. And rather a few students going out of that particular group to maybe another secondary school. That wherever there is a significant number of students being fed across those boundaries, <u>that</u> group, it is policy that <u>they</u> must share and discuss differences in the optional portion of the program. They must share this information prior to implementation, maybe not that but something along that line...

D: What you are doing then is forcing, not forcing but highly recommending that they get together...

A: No. It's policy that they must share.

Y: A minimum could be sticking something through the mail.

F: That's right. There's no teeth in it if they don't ...

A: Then it would be our responsibility, and in particular mine, and any resource people that I would have (next year, it is the intention of the system to have two people working in science at the intermediate level) to go around and work with people like supervisory officers, principals and superintendents, who have the responsibiility for policy including curriculum policy, although the fact of the matter is that the principals, the majority of them, don't see themselves as curriculum leaders. Would something like that, as a policy statement, would you be happy to defend that to this next level? (Several: Yes.)

Y: You would not be saying that they have to agree on certain units.

A: No. But they have got to talk about it if there are some differences. It would not only be sharing but a discussion of differences. Would that work?

B: It might.

F: It can't fail to work. So they get together and have a heck of a good argument about it, so at least they know what they are doing and that's the primary function of it.

B: The thing that I, I don't know, maybe this is right out in left field, the thing that I worry about is the fact that you are trying to come with some sort of policy: This is what you should do, now go ahead and do it. But there probably won't be any time for it. Sort of after school, whenever you get together. So I don't think it's going to happen. You know, great, it's policy: you must do it, but after 4 o'clock please. When else can you sit

F24/C24: p7 provides for flexible interpretation in implementation. The corresponding warrant (W15) is that flexibility in implementation is desirable.

C9 again - feasibility is the issue (W5/W10).

F25/C25: Is time going to be available for p7 to be implemented? Here p7 is being questioned on the basis of F25. The warrant at issue is that it is important to have adequate time resources for a proposal to be implemented (W16).

down and talk about it? I may have 2 spares in a row, but this guy and this guy won't have the same spares at the same time, and that's the nitty-gritty of it too.

A: For what it's worth, the program department, through our superintendent has made a very strong plea to the management council that... the school year has not been determined yet, the Board has flubbed this one, they don't have a school year for next year. (laughter and derisive comments) Really that is what happened and I think they are late getting the school year in to the Ministry, they spent virtually one entire board meeting talking about the school year and didn't arrive at a decision, but a very strong recommendation has been put forward by Mr. __ though Management Council and it's been supported by Management Council, that the regional P.A. Days for the schools are across the interface, between the intermediate division, for precisely these kinds of purposes, although what you are talking about, B, is very real.

Discussion of other matters not related to this issue.

B: You know, the thing is, let's say they schedule one for April. So, big deal, I hang around for this day in April so that we can talk about what has happened, or conversely if it happens in September, how do I know exactly what I want to be doing maybe in May or June of next year?

C: But the other point is: At least even the minimum would be to send a piece of paper through the courier. (B: Sure.) Speaking personally, if we can do that, I have no idea what is going on in my other secondary school. I've got one school's curriculum, but I don't know what's going on in the other... And vice-versa, they don't even know what's going on with me. At least we'll have that exchange of paper.

A: B, the problems you raise are very real and there's not too much we can do about it except...

B: I know, except this whole undercurrent of talk has been going on and dealing with getting together, meeting and talking, and agreeing to disagree. Now, a piece of paper, if that's what it's down to, a piece of paper coming in: Oh yes, here's what they're doing. Great.

D: Yes, but if I get one back from you and one of my units depends on a unit which I assumed you were doing. Hopefully, I would then get back to you, there's soemthing...

C: The secondary will get back to the public more than the public back to the secondary maybe.

A: I think we've got to try it.

B: I am just trying to play devil's advocate, I guess. Just trying to think of some of the...

F: If that sort of thing happens in September or October particularly, whether you decide to begin your optional topic at a particular time, that's not so important as the fact that at some time during the year, you are going to do this.

B: That may be the case in a larger school like yours but in mine it doesn't matter.

F: You are going to go in there with something to start off the first couple of months with anyway. It's not going to suddenly throw off your start, anyway.

A: OK. Could we move on, time is. I think we have got enough to go with to the next round which is obviously going to be in May, before we can get these people pulled together.

G: Excuse me, A, your decision on this is that we would...

A: Well, I sense that there was enough agreement that we'll recommend, I'll be recommending to Mr. __ and back up the pipeline that way and we as a committee will be recommending to the plenary session of representatives for this consideration that on the optional material, and we haven't decided exactly how much that is yet, on the optional material, that between panels there must be a sharing and a discussion of the differences. Is there any problem with recommending to these people 4 out of 6 county-wide core at 7 and 8?

p7 agreed to (P7).

p1 agreed to (P1).

G: Actually, I think these percentages, 67 and 75, are pretty good. And for those in the secondary panel who think that that is a little too much, you still have, assuming the different phases have different courses, you've still got control there is each unit for optionality. I see nothing at all wrong with the 75% and the 67%. I think that those are good percentages.

Implicitly, p2 agreed to also (P2).

B: I've got no qualms about that.

E: I... I wasn't questioning the 75 at all. I was just wondering in terms of the data on the other sheet, how you could justify it.

A reference back to an earlier query with respect to this matter.

A: I don't think we have to, E.

E: I agree with the 75 myself.

A: OK then.

Again, discussion moved on to other matters. It appeared that this time however the issue was resolved. That this was so was confirmed by the recommendations that went out in the name of this committee to the larger meeting of teachers which convened a few weeks later. These recommendations were agreed to without further debate and subsequently became Board policy.

APPENDIX B

ANALYSIS OF ISSUE B

(Weather)

In the following transcription, the following abbreviations are used to refer to participants:

A:	Coordinator of Science for the board and chairman of the meeting
T(S):	A teacher from a secondary school
T(E):	A teacher from an elementary school
T( ):	Other teachers whose school is unknown
X, Y:	Researchers, participant-observers at the meeting

In addition, units of courses are referred to as "E1", "E2", "E20" and so on. These designations are derived from the Ministry of Education Intermediate Science Curriculum Guideline.

Transcription	Analysis
A unit entitled "Weather" is listed in the Ministry Guideline as an option at grades 7 and 8. In drafting a proposal for a countywide core program for those grades, the Coordinator had included this unit in Grade 8. The proposal, in the form of a flow-chart showing a possible organization of units for both grades 7 and 8, had been presented to the coordinating committee where the inclusion of Weather attracted little comment. The Coordinator's rationale for its inclusion was outlined at the subsequent meeting of teachers where the proposed core program was debated at some length. Excerpts from that discussion relating to the unit are reproduced here. The transcription begins toward the end of a long presentation by the Coordinator in which he explained the reason for his proposals for the core program at grades 7 and 8.	
A: My rationale for E20 (Weather) appearing as a core unit in this recommendation to you is that it turns out, if you look at this, when I looked at it, it could be organized as the other units, all the optional units in 7 and 8, or virtually all of them, contribute to the study of Weather. All the physical science ones, in particular, all have something to contribute to it, and because we can't deal with all these, there just isn't time, Weather would appear to be a good place to pick up in that unit a lot of the tag ends that you won't see as a part of your 7 and 8 program that you're not going to deal with in a full-blown fashion, as a full-blown unit.	Policy Proposal p1: To include the unit, Weather, in the core program for grade 8. Fact F1, which is accepted immediately as a consideration C1, because it forms the basis of the proposal p1, using the warrant that it is desirable to use a unit that combines aspects of several others together (W1). Fact F2, which is accepted immediately as a consideration C2, because it also forms the basis of the proposal p1, using the warrant that a unit is a good one if it picks up topics inadequately covered elsewhere (W2).
T(S): A, can you give me an idea of what sort of things you're talking about? When I see Weather, I think of a geography course. I'm not really familiar with the elementary course.	Fact F3, more implied than explicit, suggests that Weather belongs more in geography than in science.

A: You're thinking of climate. I think Weather belongs in science and climate perhaps in geography.

F3, however, is dismissed and never becomes a consideration.

T(E): But it's also a unit in the junior. We just got that implemented in the grade 6, now we're doing it in 7. You see, most senior publics are 6, 7, and 8, and we seem to be really overlapping the junior program.

F4 raises a point that would lead to a conclusion exactly opposite to p1: That Weather should not be included in the core program (p2). The warrant here would be that it is undesirable for a unit to be repeated in consecutive grades (W3).

A: Yeah, you're right. This....

F4 becomes C4.

T(E): So you should put a gap in between, maybe.

Proposal p2 is made explicit.

A: Can somebody, ____, could you give me a hand with this thing here (the overhead projector).

Trivia, not related to issue.

T(E): You're after some specific comments on this from a school basis...

Process comment, not specific to issue.

A: Yeah, okay.

T(E): At our school, the four science teachers got together and we had three recommendations for a change. We recommended that Classification of Organisms follow directly Characteristics of Organisms in grade 7, and that Force and Energy, and Water and Solutions be interchanged completely because of the abstract nature of Force and Energy, the more abstract nature versus the more concrete nature of say Water, if you like, to give them an extra year and give it to them at grade 8. But the second part of the question would be that if the line between grade 7 and 8, if that patched line (on the flow chart) were nonexistent--do you understand what I'm saying?--if that line were nonexistent, then none of these concerns would materialize from our standpoint. In other words, if we're allowed to do this--to interchange--but then I guess we get back to the one of the biology and physics ... in high school. Well,

This intervention, while not relating to the issue of Weather concerns related matters. The speaker also raises these proposals again later.
(a proposal concerning other units in the core)
(another proposal)

(fact supporting second proposal)

(a third proposal, apparently an alternative to the first two)

the first question was: Is that patched line meant to be a definite position? If so, our recommendation was to make those changes.	
(inaudible question)	
A: Thanks. Can I come back to that in just a minute? To answer that question, this was the way in which... This is the way I look at it. Placing in place all the optional units that are listed in the Ministry as well as the core units and--this is simply my thinking--that, for example, Properties of Matter--well, I'd want to deal with Water after I'd dealt with Properties of Matter and I certainly wanted to deal with solutions after I dealt with the more common solvents. I'd want to deal with Force and Energy. I could deal with these if I had unlimited time and access to the students--work for a long period of time. Certainly topics like this. After that, Simple Machines reduce with this one as well, but notice that with every one of them you're dealing with Weather, you are dealing with Solutions; you are dealing with Temperature, you're dealing with Light. But a lot of them key into this, and obviously you can't deal properly with all of them, and so I'm suggesting that Weather is one way, and that's all it is, just an idea. That's one reason why we're together here today--to pick up some of the ideas, move some of them out, move some of them here. Not try and deal with everything--you can't.	Process. Elaboration of C1. (p1) p1 repeated. Process comment.
T( ): (referring to the results of the teacher survey) A, it's marked as a low priority option, and then again by only 53%.	F5, in support of p2, using warrant (W4) that degree of teacher support in survey data should provide basis for policy.
A: True... (inaudible)	F5 becomes C5 (supporting p2).
T( ): Statistics are selectively meaningless if it's being laid on.	Process.

A: There's nothing being laid on. This is a recommendation, and it's one that I suspect there's a good chance we may not resolve today.

Process

T(E): Would there be more opportunity to decide than at this meeting? You said this was the last meeting this year, and that this thing, this document will be submitted, possibly during the summer, be picked up during the summer. Would the validation period allow flexibility of changes? This obviously highly squeezed level between junior and secondary. You know, either we're teaching for high school, or, you know, we're teaching for their program, or we're teaching what we are because the K-6 has done something that's been decided. It's the old squeeze play, I feel.

Process.

A: Yeah, don't mistake my meaning there. I said we have to be aware at 7 and 8 where these kids come from and where they're going. That's about all. The program can stand on its own feet, and we should be able to justify it to kids at that age.

Implied warrant W5 for argument (that it is desirable in selecting content to take into account a student's background and personal goals) not related (here) to any specific proposal, because no relevant facts (i.e. concerning backgrounds or personal goals of students) are presented.

T(E): Will there be a chance to answer that type of question? Perhaps will the flexibility during the validation period allow for that kind of justification for the early adolescent? You know, the way I see it is just kind of—here's the data. It's not significant, so here it is. I would like to see the flexibility to answer your point, which I think is a very good point.

Process.

T( ): Is it significant that it's made a county core?

A: Yeah. One of the tasks that we had is to identify a total of 4 units at the grade 7 level and 4 units at the grade 8 level as county core. Now you must include the Ministry core units. Now __ has raised what I thing is a very valid point, that during the validation period, or the trial

implementation--one of the reasons why it's designated as that is to allow for this kind of thing. Quite frankly, I hadn't thought of that kind of possibility, but I think you raised a very interesting point. If you look at the yellow sheet ...

T(E): A, basically can't we say this - that why don't we just leave it as you put in the eight optional units, and for the validation period and the implementation period when we're trying it out, then take a survey after each and every school-- like, I mean, some of us this year have tried it, and others haven't. Why not put the eight units out, like sort of make it aware that what the eight units that the Board would like covered in the 7 and 8 group. Then let the schools try it out and see which ones they'd like to try at 7 and which ones they'd like to try at 8, and <u>then</u> do a survey, and a darn sincere survey, with just the senior publics who have tried this. Like, I mean, I know our school has tried the implementation this year of the suggested core units in 7 and 8, and the optional ones, and some schools haven't done that. They haven't, you know, it wasn't laid on that this should have been tried for implementation, so they come out and say "OK, here's eight core units that we want to try at the 7 and 8 level, and then simply deal in a survey with those senior publics who have tried those, and say, okay, how do you find this one in 7 as compared to this one in 8? And maybe his school tried it in 7, where I've tried it in 8, and I'll have a little feedback, and we can compare, whereas now, you know, saying that this is going to be in 7 and this is going to be in 8 when some haven't even tried it. Why not, as you say, take it into the implementation in the one year and throw out 8 units instead of the 6 that we had to deal with.

Process comment implying the potential warrant W6 that the satisfaction of teachers, following trial use of units, is a good way to determine the selection to be contained in the core. Acceptance of such a proposition would require that the final decision be postponed until the facts (concerning teachers' likes and dislikes of units, following trial use) were available. See later, where this idea reappears.

T(E): I'm still concerned with why Weather is a core unit. I thought, and I still think, OK, the statistics probably don't mean that much, but they do indicate something. And look at Forest Resources. 70% thought it should be taught in one or other grades.

Back to the issue of weather.

Repeat C5 (supporting p2).
The same warrant that linked F5 to p2 (W4) could be the basis of a quite different proposal based on other Facts.

T(E): I assume that it's going to be in 6. Why put it in as a core unit in 7 and 8?

C4 again (supporting p2).

A: I don't think I'm going to try and persuade...

Process.

T(E): I can see your rationale, but I don't agree with it.

Rules of superiority at stake here (see later discussion).

A: What I seem to sense is that you're suggesting that perhaps what we should do is ...

Process.

T(E): Don't draw the line.

A: No, those lines don't - the arrows don't mean anything.

T(E): Not those lines - the difference between 7 and 8 for another year, and let the 7 and 8 teachers decide which is more appropriate, like the 9's and 10's here have already stated, you know. They've obviously tried it out for the past few years, but all of a sudden, you know, some schools haven't been aware of any particular core units, and some <u>have</u> tried it. So why not, you know-- the Board will say, Okay, here's 8 units we want you to try for this year, and we want you to decide where they're going to be. That way, the Board's happy and so are the 7 and 8 teachers, really, because they'll have a say in it.

Again, the warrant W6 related to the teachers opinions following trial use is implied.

T(E): I think it matters whether we're in fact given an optional category there ... break up that solid circle (on the diagram), but then you have to pick up another one.

T(E): You had to have eight.

You have to pick up another one.

Process discussion, not leading in any clear direction.

A: Yeah, we've already decided that there will be eight. Four core in each year.

T(E): Is it a strong feeling on the committee for 8?

A: No. Maybe I should let some of the people that are on the committee there speak to this.

T(S): Some of them are dictated by the Ministry already.

T(E): Yes. Okay, those I understand. Fine.

T(S): And the other ones are the way they came out in light of the survey. But as A said, there wasn't a strong preference by year. Weather is the questionable one.

T(E): Yeah, I sort of see a circle there with a question mark or something, some little feedback because if it's going to be mandatory, we're going to have to do it.

T(E): Obviously, A, on the survey the keenest have answered the survey and the other ones haven't. So it's almost--you know--

A question here of the reliability of all Facts derived from the survey.

A: Yeah, there's a lot of truth in that. One of the hazards of this by hitting in the direction of what you suggest right now. But I think that there's some merit in making a recommendation that we do evaluate the placement of these things for at least a one year period.

(End of tape, break in recording)

A: How many of you who are teaching at the 7 and 8 level would rather see something other than Weather? I don't have real strong feelings about it. I gave you my rationale. (A number of hands go up.)

The issue is put to a vote, a process which implies a potential warrant, though at this point there is no indication of the purpose of the vote nor the intended use of the result.

T(E): Could we have the other side of the vote, please?

A: How many people would like to see Weather? We have a couple. I think what we'd better do, since it seems to be somewhat controversial -- we can't be guided by just simply a vote -- it is recommended, for the year, that the units, the Ministry core units, and designated "Water and Solutions" be developed. Now, for that trial period, ____, you were suggesting that you'd rather see Water and Solutions in grade 7. Is that right?

Process (and implied warrant) questioned.
New proposal (p3): That for one year the 6 Ministry core units and one other, (Water and Solutions) be the core program. Weather is omitted, therefore.

T(E): Well, from the point of view of the teachers at our school, the argument was that if Force and Energy are to be developed on a more highly abstract basis -- some of the arguments for the grade 9 physics vs. grade 10 biology ... but that's another argument -- if that's the case, if it is to be more highly abstract, then, say, working with Water and Solutions, then why not put these more highly abstract materials in the grade 8 because that's one more year, and maturation-wise, there seems to be, I would think generally maybe perhaps more of a difference in maturation and readiness between 7 and 8 than 8 and 9. There seems to be quite a change there. I'd like to see more of the abstract material with grade 8, and perhaps more of the concrete material -- it's a little easier to work with hands-on if you like -- in grade 7. And the other point about the "Weather", we had some argument at our school as to why that circle -- Structure and Life Cycles -- which we felt was intensely important ecologically, why it was given an optional strength versus the weather being, you know, we felt perhaps that if the weather was deleted or became optional, then it would trade with the ecological unit. It seems to really tie everything together, physical and biological material together into an ecology unit if you like.

F6 in support of p3, the warrant being that more abstract units should be placed in higher grades (W7) (See also F7 below for additional support for this argument.)

F7 (related to F6 and in support of p3), also using warrant W7.

To another proposal now -

F8, a value assertion.

which, when taken with

F9, supports the new proposal, p4: that Structure and Life Cycles replace weather. The warrant here is W2, the same as that used to link F2 with p1.

T(E): I agree with that.

A: Yeah. One of the reasons that I put that in as a suggested unit -- and I should explain that to you -- is my suggestion here is that that be developed as two optional units that people could pick up, because there was that strong preference for life cycles. It didn't seem to go anywhere, an awful lot of people are doing it, and this is why I'm suggesting that it be done as #22 and 23, where the Ministry said "you can design something locally" and not deal with them as the Ministry has in the optional units, but rather have a look at the possibility of the structure of plants and animals, or the structure and life cycles of plants, and then the second unit, the structure and life cycles of animals. These are all possibilities that kind of way -- possibilities to look at -- in our initial trial. How does that idea strike you?

This appears to be supportive of the inclusion of this unit, though the specific matter of its being optional or mandatory, which was at stake in p4, is not raised.

(F)

(F)

(p)

T(E): Well, we felt quite strongly about not segregating animals and plants as such until perhaps a little later in high school where you've got your more highly developed biology treatment of zoology vs. botany, but we felt strongly that the whole ecological approach be stressed at this level. It opens a lot of -- it allows for a lot of open-endedness as far as field work and follow-up, whereas Weather, you know, Okay, there's some good work there that could be done as well, but it seems to be less openended perhaps than the plant-animal interrelationship, which of course you'd have to bring in earth science for that anyway. If you talk about an ecosystem, you can't ignore it, so I felt that was a very important all-encompassing topic that perhaps we should go as far as we felt anyway. It should be mandatory.

An alternative to this idea.

(F)
This returns to the point raised before (F8) with the added reference to "level".
F10, in support of p4, using warrant that good units provide opportunities for field work and other open-ended activities (W8).

Interestingly, F11 makes the same point for weather, but less strongly.

p4 restated.

A: I think I've got the sense of what you're getting at. There is some

F6-11 are accepted as Considerations (C6-11).

question, then, about the value of Weather. The points that ____ has been making about life cycles, plants and animals here, we've got to resolve this particular issue here as to what is going to happen this summer when we're dealing with this. How many of you at the 7 and 8 level would feel comfortable with the writing team developing Properties of Matter and Measurement, and for next year, we do not specify precisely where these things would be taught, but E6, E5 there be developed, written, E1, E3 Force and Energy, E2 Classification, E19 and 18 there. Water and Solutions, E4 Interdependence of Organisms, and, if they can, some kind of unit based around that structure and life cycle of plants and animals that can be worked on, on an optional basis next year, and that we not make the strong recommendation to the senior administration other than we want one more year in the field to decide where thse things are going to be placed.

The following set of process proposals implies a compromise among several substantive proposals developed earlier.

Implies p3 (and p2).

Implies p4.

Final decision to be delayed.

T(E): That way at least the Board has their -- you know, you're satisfying them as saying you're having 8.

A: It's not them, it's us.

T(E): Okay, well, still you keep talking about taking the document in, so ...

T( ): What we're concerned about is the separation of E1, E2, and E4 when thy're so sequential in their nature and build on one another. One unit in grade 7 ... carry over into grade 8 (inaudible) put them together either in 7 or 8.

A somewhat different issue here: the sequence of core units. The compromise proposal incorporating a delay has reopened other matters that might have been regarded as closed.

A: I think what we're going to find happening next year if we go for one year basis where there is in the schools these units that are developed by the writing team during the summer -- that there is a plan, kind of like a registered plan, that will be

Discussion of compromise proposals.

examined and reported on. Each one of you, working with these things, will probably have some different kind of organization and you'll say "this seemed to work better in grade 7 or in grade 9 for these reasons" and so on. For that trial period of at least one year, and it may be longer, if it is necessary. That some of these possibilities of moving E2 back into grade 7 will occur, and we'll get informtion on this. What I'm suggesting then, is that we modify that recommendation so that it in effect leads ... Yes, is there a question back here?

T(S): You remember A, that when I started this year this thing, the first concern I had was that there was no grade 8 topics that would be overlapping. This was the one thing that we were in agreement on: that we do specify what grade level they ought to be taught at. If you're going to change that proviso, I'll have to take that back to my people, because it's a complete turnaround from where we were.

Another point previously thought to be closed but, under the new compromise, reopened.

A: Well, what I'm sensing here is that there is a request for a year to have a look at this. That we develop these units. I don't think we're going to deal with deciding tonight.

Process.

For a few minutes, the discussion moves on to other matters and the meeting comes toward its end. However, one more intervention about "weather" is occurs as the meeting concludes.

T(S): ... I just want to get one thing in before we — I'm still concerned about the weather issue. Maybe we could try to resolve it if I could suggest that we replace the Weather unit by the one you've got as an extension of E3, the little box down at the left-hand lower corner. (Forms of Energy) Could we not make that

Weather again.

p5: That Weather be replaced by Forms of Energy.

Little argument in support of this proposal.

make that a unit, and Weather be sort of an extension of that as a unifying theme? I just feel that might go better with the elementary people.

F12 is introduced which uses the same warrant as F5 (W4).

T(S): Just one recommendation for the future. If we're going to get into hassling between what's going on at an elementary level and so on, could we not have separate meetings? A lot of the elementary discussions I find very interesting but I'm afraid to put "input" in and I don't want to override them. But I don't really... I have no opinion. I've never taught grade 7. I've taught grade 8 for one or two years, and I don't want to go back to it (laughter).

Process proposal.

(inaudible)

A: Well, I'm not asking you to. I thank you very much for listening to some of their concerns.

T(S): Oh, I think it's very interesting. But I think it wastes a lot of time on our part, and it wastes their time too because we sit here, and I don't think we should interject ... It would make it a little easier if both of use have a meeting at each level, and then. ...

A: Okay. I'm going to put together what I see in the results of this thing and give it to all the people on the list, all the representatives, and we'll go to work on it this summer. I don't think we're going to have to pull this entire group together. The coordinating committee is obviously going to have to meet to consider this thing again, but, if any of you on any of these issues have large concerns would you now write to me, please, and thank you very much for coming.

Plans announced consistent with compromise proposals.

At this point, the meeting ends and there is no more general discussion about "Weather". However when the core program for grades 7 and 8 is

next discussed (at a committee meeting, nine months later) the proposals have been reorganized and the unit on Weather dropped entirely. The "ecological" units, Structure and Life Cycles of Plants and Animals, are instead included. No further mention is made of Weather.

p4 becomes the Final Policy (P4).